**PART - I**

# A STUDY ON KUROSANIOMAM

**(*HYOSCYAMUS NIGER*)**

## FOR AZHAL KEELVAYU

**PART - II**

# A STUDY ON KARPOORA MEZHUGU

## FOR PEENISAM

***Dissertation submitted to***

**The Tamilnadu Dr. M.G.R. Medical University, Chennai**

**in *partial fulfillment of the requirements for the award of* Degree**

**of**

## DOCTOR OF MEDICINE (SIDDHA)

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**GOVERNMENT SIDDHA MEDICAL COLLEGE**

**ARUMBAKKAM, CHENNAI – 600106**

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# Certificate

Certified that the dissertation work, "**A Study On Kurosaniomam (*Hyoscyamus niger*) for Azhal keelvayu**" and "**A Study On Karpoora Mezhugu for Peenisam**" submitted by **Dr. D. Maheswari** , Final M.D. (S) student, **Regn. No: 32051605**, Branch – II, Gunapadam, Government Siddha Medical College, Chennai; is the bonafide work of the individual only.

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# Part - 1
# A Study on Kurosaniomam for Azhal Keelvayu

## Introduction

## 1. Introduction

Siddha system is one of the ancient systems, contemporaneous with those of the submerged lands, Egyptian, Mesopotamian, Chinese and German medicines. It is a traditional, tried, time tested and trusted Indian System of Medicine. The unique nature of this system is its continuous service to humanity for more than five thousand years in combating diseases and in maintaining physical, mental and moral health.

The Siddha Pharmacopoeia contains, herbal, mineral and animal products including substances of disgusting character. However, plant drugs are its mainstay. The focus of Siddha medical practice is using herbal drugs first.

Medicinal plants constitute a group, which are of great value for domestic use and for export. The use of various parts of several plants cure special ailments has been in vogue from ancient times in our indigenous medicines. Now, plants are the only source of a number of well established and important drugs. According to the data provided by Foundation for Revitalization of Local Health Traditions (FRLHT), Bangalore, of about 8000 plant species, the Siddha System utilizes 1121 plants, while Ayurveda 1769, Unani 751 and the Folk System exploits 4671 species. The data may not be very accurate, but provides an overview of the importance of plant in the global health strategies and the Medicare Programmes. [1]

Due to the population explosion and the spread of new diseases, the necessity to identify new herbs sustains the medical care. The WHO is actively encouraging countries to use herbal medicines which have been traditionally used for centuries.

Although the use of traditional remedies is advantageous, it does suffer some limitations. The identification of herbal crude drugs, with their botanical name, distribution, occurrence and identification of adulterations, substitutions, purity and genuineness is very difficult. Exact botanical identity of a phyto drug is the prerequisite for all further studies on drugs.

In crude drug markets, many a times some phytodrugs happen to be fake, adulterated or substituted ones. The reason is because of the demand in large


**H.niger -Kurosaniomam seeds**

**T.ammi - Omam**

***C.viscosa* - Naikadugu**

quantities or the non-availability due to over exploitations of plants from natural resources, or the cost or out of ignorance.

About 75% of the Indian populations rely heavily on the use of herbal drugs for the treatment of diseases.[2] Efficacy of any medicine depends upon the genuineness of the raw material, used for its preparation.

One such drug is '**Kurosaniomam' (*Hyoscyamus niger*)**. In Gunapadam Mooligai Vaguppu it is indicated for many diseases, including **Vatha** diseases. One of the **Vatha** diseases affecting a large population is **Azhal Keelvayu**, which is a painful degenerative joint disease.

When Vayu is in vitiated condition in the body and if diets which stimulate the 'Pitha' are taken, **Azhal Keelvayu** occurs. In this disease the swelling of the joint increases day by day. As 'Pitha' increases, 'Kapha' in the joint decreases and hence dryness occurs. So during flexion of the joint crepitus is produced. Stiffness and restricted movements also occur.[3]

"**Kurosaniomam**" is a versatile herb having wide medicinal properties.[6] It is an economically viable medicinal plant, having national priority, [5] well known for its alkaloids. Its narcotic properties help in Pain Management and hence I chose to study this drug for **Azhal Keelvayu**.

However while trying to procure this drug it was realized that it is not easily available in the market. In South Indian Markets a seed resembling 'Omam' (*Trachyspermum ammi*, Family: Umbelliferae) is being sold as ***H.niger***. In North Indian markets seeds of '*Cleome viscosa'*, Family Capparaceae (Naikadugu) is sold as ***H.niger***. Even in Gunapadam, ***H.niger*** is classified under 'Omam', which does not clearly indicate its narcotic properties. It is one of the ingredients of many Siddha medicines. But instead of '**Kurosaniomam**' some other drug is added to these preparations, due to ignorance.

Thus authentication also became a part of this study.

# Part - 1
# A Study on Kurosaniomam for Azhal Keelvayu

## Aim & Objective

## 2. Aim & Objective

**Aim:**

To assess the efficacy of '**Kurosanioma Churanam'** in the management of '**Azhal Keelvayu'** .

**Objective:**

The objectives of this study are:

- To collect and identify the authentic sample of 'Kurosaniomam' seeds
- To find out the therapeutic dose
- To evaluate the therapeutic efficacy in treating Azhal Keelvayu.

The goal of Azhal Keelvayu therapy is to decrease pain and maintain (or) improve joint function.

Kurosanioma Churanam was subjected to the following studies:

- Pharmacognostic Studies
- Phytochemical Analysis
- Preliminary Bio-Chemical Analysis
- Acute Toxicity Studies
- Anti-Inflammatory and Analgesic Activities
- Clinical Study

# Part - 1
# A Study on Kurosaniomam for Azhal Keelvayu

## Review of Literature
## Siddha Aspect

***H.niger* plant**

## குரோசானிஓமம்

**வேறுபெயர்கள்:**

திப்பியம், காரஸவை, காரபி, கார்சவை

இஃது செடிவகையைச் சேர்ந்தது. இது சீமையில் பயிராகும் பூண்டு. இந்தியாவிலும், இமயமலைத் தொடரில் 8000-11000 அடி உயரமுள்ள பாகங்களிலும் தானாகவே பயிராகிறது.

**பயன்படும் உறுப்பு**

விதை

**குணம்**

| | | |
|---|---|---|
| சுவை | : | கார்ப்பு, சிறுகைப்பு |
| தன்மை | : | வெப்பம் |
| பிரிவு | : | கார்ப்பு |

**செய்கை**

உறக்கமுண்டாக்கி, தாதுவெப்பகற்றி, துயரடக்கி, இசிவகற்றி, சிறுநீர்குறைபடப் பெருக்கி.

**பொது குணம்**

**"வெகுமூத் திரம் வாதம் வீரியநட் டம்புண்**
**உகுபேதி யுட்கடுப்பி னோடே-மிகுகரப்பான்**
**திராக் கபமிவைபோம் செய்யகு ரோசானியென்றால்**
**வாரா மயக்கமுறு மால்"**

இதனால் மிகுதியாகச் சிறுநீர் கழித்தல், **வாதநோய்கள்**, வீரியநட்டம், கழிச்சல், கடுப்பு, கரப்பான், ஐயநோய்கள் போகும். மயக்கத்தை உண்டாக்கும்.

**மருத்துவ பயன்கள்**

- **வாத நோய்க்கு** வெகு உபயோகமுள்ள மருந்து. இதைக் கொடுக்க நோய், எரிச்சல் தணிந்து நித்திரை உண்டாகும்.[7]

- **வாதநோய்** நிவாரணிகளுள் சிறந்ததாக குரோசானிஓமம் கூறப்பட்டுள்ளது[8]

- விதையை பிராந்தி விட்டரைத்து, கைகால் **கீல்களின் வீக்கம்,** ஸ்திரீகளின் மார்பு வீக்கம், அண்ட வீக்கம் இவைகளுக்கு தடவிவிட போகும்.

- 2.1 கி குரோசானிஓமத்தை நீர் விட்டரைத்து, 84 மி.லி. நீரில் கலக்கி,1/4 42 மி.லி. சுண்டக்காய்ச்சி வடிகட்டி, வேளைக்கு 30 மி.லி. வீதம் தினம் 3 வேளை சிறிது தேன் அல்லது சர்க்கரை கூட்டிக் கொடுக்க இருமல் ரோகத்திலுண்டான கஷ்ட சுவாசத்தைக் கண்டிக்கும்.

- குழந்தைகளுக்கு மேற்கூறப்பட்ட அளவில் 1/10ல் பாகம் முலைப்பாலில் கொடுக்க, அஜீரணத்தைப் போக்கும்.

- குழந்தைகள் இரவு காலத்தில் தூக்கம் பிடிக்காமல் உபத்திரவம் செய்யின், அப்போது கொடுக்க நல்ல நித்திரையை உண்டாக்கும். கெடுதல் செய்யாது.

- 1 கி குரோசானிஓமத்துடன் 4.2 கி கசகசாவைச் சேர்த்தரைத்து, தேன் விட்டு மத்தித்து 2 வேளையாகப் பங்கிட்டு அந்தி, சந்தி கொடுத்து வர விக்கல், பிடிப்பு போகும்.

- விதையை நீர் விட்டரைத்து புருவத்தின் மேல் தடவ கண் தாரை விரியும்.

- சூரணத்தை வேளைக்கு 260 மி.கி. தேனில் தினம் 2 வேளை கொடுக்க, அபினி, கஞ்சா போல் மலசலத்தைக் கட்டாது. முதலில் தேக திடத்திற்கு ஏற்றவாறு சிறிய அளவில் ஆரம்பித்து குணம் ஏற்படாவிடின், சிறிது அளவை அதிகப்படுத்திக் கொள்ளலாம்.

- இச்செடியின் இலை, பூ, வித்து இவைகளிலிருந்து எடுக்கப்படும் சத்து, 65 மி.கி. - 320 மி.கி. வரை, நினைவுத் தடுமாற்றம், தூக்கமின்மை, சூதகவலியில் காணும் தமரகத் துடிப்பு இவைகட்கு வழங்கலாம்[6].

- இதில் தாதுவெப்பகற்றும் செய்கை அதிகமாய் இருப்பதால் ஜனனேந்திரியங்கள், குடல் நுரையீரல்களில் காணும் எரிச்சலை சாந்தப்படுத்தும்.

**குரோசானிஓமம் சேரும் வாத நோய்களுக்கான மருந்துகள்**

1. **அமுக்கராசூரணம்**[10]

அமுக்கராக்கிழங்கு-350 கி, வால்மிளகு, **குரோசானிஓமம்,** பறங்கிப்பட்டை, கருஞ்சீரகம், கடுக்காய், சுக்கு, கடுகுரோகிணி, வாலுழுவை, சிற்றரத்தை, திப்பிலி வகைக்கு 35 கி சேர்த்திடித்த சூரணம் 1-பங்கு, வெள்ளைச்சர்க்கரை 4-பங்கு கலந்து வைக்கவும்.

அளவு : 1 கி, 2 வேளை

அனுபானம் : நெய்

தீரும் நோய்கள்: **வாத**, பித்த வியாதிகள்

2. **வீரமெழுகு**[11]

வீரம், இரசம், பூரம், இலிங்கம் - 4.2 கி, பளிங்குசாம்பிராணி, வெடியுப்பு, கருப்பூரம், பொரித்த வெங்காரம், நவாச்சாரம் - 8.4 கி, பச்சைக்கர்ப்பூரம், கோரோசனை - 6.3 கி - குங்குமப்பூ 18 கி, **குரோசானிஓம** சூரணம் 36 கி, தாளிசபத்திரி சூரணம் 54 கி, இவையனைத்தும் கல்வத்திலிட்டு, சிறிது சிறிதாக முலைப்பால் விட்டு 4, 5 மணிநேரம் அரைத்து பத்திரப்படுத்தவும்.

அளவு : 130 மி.கி., 2 வேளை, 7-10 நாள்

தீரும் நோய்கள்: கை கால் குடைச்சல், கை கால் பிடிப்பு, **கீல்வாயு, முழங்கால் வாதம்**

3. **மயனத்தைலம்**[11]

வேளைக்கு 1 துளியாக, தினமிருவேளை சர்க்கரையுடன் கலந்துண்ண 3-7 நாட்களில் பாரிசவாயு முதலிய கடும்பிணிகள் தீரும். மேலுக்கு தேய்ப்பதினால் **கீல், எலும்பு** இவைகளைப் பற்றி அதிகரித்த வாய்வும் நீங்கும்.

4. **வாதத்துக்குத் தைலம்**[14]

கழுத்துப்பிடரி நரம்பிலும், மற்ற அங்கங்களிலும், தலையில் படாமல் சர்வாங்கமும் இட்டு அனல்படாமல் 3 தினங்கள் தடவிப்பிடித்துவிட, 3-நாள் முழுவதும் ஆவதற்கு முன்பே **வாதங்கள்** குணமாகும்.

5. **இராஜஅமிர்தாதி சூரணம்**[16]

ஏலம், இலவங்கம், அதிமதுரம், நற்சீரகம், மகரப்பூ, **குரோசானிஓமம்,** வால்மிளகு, திப்பிலி, வாய்விளங்கம், குங்குமப்பூ, சடாமாஞ்சி, கடுகுரோகிணி, திப்பிலிமூலம், நிலவாகை ஆகியவற்றை ஓரெடையாய் சூரணம் செய்து, அதற்கு நிகர் சீனிகூட்டி எடுத்துக் கொள்ளவும்.

அளவு : 1 கி, இரு வேளை

தீரும்நோய்கள் : கைகாலுளைச்சல், **வாதநோய்கள்**

6. பஞ்சதிக்தக கிருதம்[11]
7. கண்டங்கத்திரி லேகியம்
8. சரபங்க வில்வாதி லேகியம்
9. பறங்கிச்சக்கை சூரணம்
10. நந்தி மெழுகு[13]
11. கோடாசூரிக் குளிகை
12. குக்குலு மாத்திரை[14]
13. சவ்வியாதி சூரணம்
14. பேரீச்சங்காய் பூரி
15. சகல வாதத்துக்கும் தூள்[8]
16. கந்தகநெய்
17. மேகராசாங்க எண்ணெய்
18. இடிவல்லாதி மெழுகு[12]

# Part - 1
# A Study on Kurosaniomam for Azhal Keelvayu

## Review of Literature
## Botanical Aspect

## 3.2 Botanical Aspect

**Classification:** [4]

- Kingdom - Plant kingdom
- Class - Dicotyledons
- Subclass - Gamopetalae
- Series - Bicarpellatae
- Order - Personales
- Family - Solanaceae
- Genus - *Hyoscyamus*
- Species - *Niger*

**Synonyms** [17]

- Common henbane
- Fetid night shade
- Insane root
- Hog's-bean
- Jupiter's bean
- Hen bell
- Symphonica
- Cassilata
- Cassilago
- Desus caballinus
- Jusquiame

**Vernacular Names** [18]

- Tamil - Kurosaniomam
- Malayalam - Puka-yila
- Kannada - Khurasanin Vadakka
- Sanskrit - Parasika, Khorasani Yamani
- Telugu - Pogaku Dhumra Pattram
- English - Common Henbane
- Arabic - Bazrul-banj
- Hindi - Khurasani Ajvayan

**Habitat** [19]

An herb of temperate Western Himalayas from Kashmir to Gharwal, distributed over Northern and Western Asia, Europe and North Africa.

**Period of Occurrence**

Plant is found more or less throughout the year and flowering occurs from February to March. Seeds mature from April to May.

**Description**

An erect coarse viscid herb, stem branched and slightly hairy; radical leaves spreading, stalked, oblong ovate, coarsely sinuate, toothed; leaves small, sessile, ovate,irregularly pinnatifid passing into bracts; flowers sub-sessile, yellowish green arranged on simple unilateral, recurved, leafy terminal spikes; calyx tube ovoid, limb-funnel shaped, slightly unequal reticulate; stamens protruding, exerted and dishiscing longitudinally ; ovary 2 celled, style longer than stamens ; capsule 1.3 cm in diameter, enclosed in a globose tube of enlarged calyx, lower part membranous, tip hard and rigid opening transversely along the constriction between the two portions; fruits small 2-celled, containing numerous seeds.

The fresh herb has a strong unpleasant odour and a slightly acrid taste, which nearly disappears on drying.

**Parts Used**

Leaves, seeds, branches and flowering tops.

**Method and Time of Collection**

Generally, biennials are preferred for the purpose of medicine. For seed collection, the plants are left in the field until the fruits ripen and pulled from the roots before the fruit dehisces. The fruits are then spread in the sun for 2 or 3 days and racked with sticks when the fruits are open. A single plant yields approximately 10,000 seeds.

**Preservation and Storage**

Seeds are garbled, sieved and stored in dry bottles and kept in cool place and protected from moisture. Generally, the seeds retain their medicinal efficiency up to 5 years.

**Method of Processing (Unani)**

As Kurosaniomam has toxic action it is used in de-toxicated form for medicinal purposes, by adding vinegar to the drug and soak it for 3 consecutive nights. The level of vinegar should be 4 times above the level of drug. After soaking the seeds are dried and used.

Dose – 200 to 500 mg

Correctives – Pure honey.

**Composition of Hyoscyamus Leaves and Seeds [20]**

The most important constituent of ***Hyosyamus*** is the alkaloid hyocyamia or hyoscyamine obtained from both seeds and leaves.

The chief constituent of the seeds is about 0.5 – 0.6% of alkaloid hyoscyamine with a small proportion of hyoscine. The seeds also contain about 20% of fixed oil. [7]

Other constituents of ***H.niger*** leaves are a glucosidal bitter principle called hyosctricin, choline, mucilage, albumin, calcium oxalate and potassium nitrate. By destructive distillation, the leaves yield very poisonous empyreumatic oil. [17]

**Analytical Data** [8]

| **Identity, purity, strength and assay** | |
|---|---|
| Foreign organic matter | Nil |
| Purity | 100% |
| Identity | 100% |
| **Physico – chemical constant (%)** | |
| Total ash | 8.29 |
| Acid insoluble ash | 4.07 |
| Water soluble ash | 0.47 |
| Moisture content | 6.30 |
| **Successive extractive values (%)** | |
| Alcohol | 10.40 |
| Ether | 0.88 |
| Petroleum ether | 1.72 |
| Chloroform | 1.72 |
| Distilled water | 7.50 |

**Medicinal Properties and Uses** [20]

**Seeds:**

The seeds are the only part of the plant used in native practice in India.[11] Experiments have shown that the seeds not only possess all the properties of the plant, but have ten times the strength of the leaves. Given as a substitute for opium where the administration of opium is objectionable, as it does not cause constipation and sickness like it. Milder deliriant than belladonna but more hypnotic, quicker acting. *H.niger* has anodyne, narcotic, mydriatic, astringent, carminative, digestive, anthelmintic, stomachic and intoxicating properties. It has parasympatholytic, anticholinergic and central nervous system depressant effects.

The drug contains the therapeutic actions of its 2 alkaloids hyoscyamine and hyoscine. Because of the presence of hyoscyamine it checks secretion and relaxes spasms of involuntary muscles, while through the narcotic effects of hyoscine it lessens pain and exercises a slight somnifacient action. Like belladonna, produces dilation of pupil, somnolency, a parched condition of the tongue and mouth and in-sufficient doses causes delirium.

- The general action is on the secretions and nervous system.
- The influence of *H.niger* on cerebrum and motor centres is greater while its stimulant action on the sympathetic is less.
- The fume of the dried herb stalks and seeds burned quickly heals swellings, chilblains in the hands or feet by holding them in the fume thereof.
- As an external application it may be employed in various neuralgic and other painful and irritable affections.
- In India, *H.niger* seeds are prescribed by the Mohammedan doctors, to sooth the mind, procure sleep, and keep the bowels gently open in cases of melancholia and mania.
- Directly stimulates the heart, but after moderate doses the action of henbane results in a sedative effect. Small doses of henbane are sedative and tonic to the heart. Large doses excite it, and excessive doses depress it.

- *H.niger* is a valuable remedy in cardiac and pulmonary asthma; in excited cardiac action from valvular disease.
- Produce relaxation of the voluntary muscles and of the intestine and bladder.
- An anodyne in renal colic and numerous other affections.
- Useful remedy in painful spasmodic affections of the involuntary muscles of the uterus, bladder and urethra, it also relieves pain in cystitis.
- Used to relieve the gripping caused by drastic purgatives especially those containing aloes and colocynth. It acts without diminishing the peristalsis.
- Useful in hypochondriasis and emotional epilepsy.
- It is used to allay nervous irritation in various forms of hysteria or irritable tough. Given as an antispasmodic in asthma.
- In small repeated doses, *H.niger* has been found to have a tranquillizing effect upon persons affected by severe nervous irritability, producing a tendency to sleep, not followed by the disorder of the digestive organs and headache, which too frequently result from the administration of repeated doses of opium.
- The oil of the seed is helpful for deafness, noise and worms in the ears, being dropped in.
- The decotion of the herb or seed or both kills lice in man.
- Smoke of seeds is used as domestic remedy for toothache.
- The seeds in wine are applied to gouty enlargements, inflamed breasts and swelled testicles. [22]
- The mixture of the powdered seeds, used as a pessary in painful affections of the uterus.
- The herb was used in magic and diabolism. [17]
- Anodyne necklaces were made from the root and were hung about the necks of children as charms to prevent fits and to cause easy teething.
- Small quantities of *H.niger* seeds added to the forage of the cattle to fatten them.

**Leaves:** [17]

Leaves of *H.niger* are official in all Pharmacopoeias.

- A sedative application for external use is prepared by macerating leaves in alcohol, mixing the strong tincture with olive oil and heating in a waterbath until the alcohol is dissipated. [25]
- A liniment prepared from the leaves when applied to the skin relieving obstinate rheumatic pains.
- The fresh leaves crushed and applied as a poultice or fomentation will relieve local pains of gout and neuralgia. As a palliative it applied to allay pain in cancerous ulcers, irritable sores and swellings.
- The leaves cool all hot inflammations in the eye.
- Applied with vinegar to the forehead and temples, relieves headache in fevers.
- The tincture or juice prepared from the fresh leaves and tops being given in mixtures as an antispasmodic in asthma.
- Combined with sliver nitrate, it is useful in the treatment of gastric ulcer and chronic catarrh.
- A watery solution of the extract applied to the eyes, is dilating the pupil, and leaves no injurious effect afterwards.
- The extract in the form of suppositories alleviate the pain of haemorrhoids.
- Dosages
    - Powdered leaves 2-10 grain
    - Juice B.P ½ to 1 drachm
    - Fluid extract 2-10 drops, tincture B.P and U.S.P – ½ to 1 drachm.
    - Solid extract 2-8 grains
    - Hyoscyamine 1/8 to 1 grain

**Medicinal Uses of Alkaloids Obtained From *H.niger*** [23]

- Hyoscyamine is intermediate in its action between atropine and hyoscine. It is a weaker sedative and hypnotic than hyoscine. Peripherally it acts powerfully.

- Hyoscyamine is injected hypodermically in epilepsy, obstinate insomnia, hallucinations, in tremors of paralysis agitans or in mercurial tremors, to relieve pain and disordered coordination as in loco-motor ataxia.
- Hyoscyamine sulphate is administered hypodermically or given in pills for mental excitement and insomnia. Doses of 0.6 mg are recommended in sea sickness, one every hour if required.
- Hyoscine is a very powerful anodyne, hypnotic and sedative.
- Hyoscine hydro bromide 0.5 mg IM has been used in pre-anaesthetic medication.
- A preparation for transdermal administration of Hyoscine with rate controlled sustained delivery over 72 hours used in the prophylaxis of motion sickness
- In obstetrics, hyoscine has been combined with Pethidine to produce 'twilight sleep'
- Hyoscine had earned a reputation as a 'lie detector' during worldwar II. Its amnestic and depressant action was believed to put the subject 'off guard' in the face of sustained interrogation and sleep deprivation, so that he came out with the truth. [24]
- Hyoscine butyl bromide – adult dose 10mg – 4 times daily by oral route or as IM (or) IV injection in intestinal, biliary and renal colic.
- A clinical comparison has been made by Vollmer, of value of these alkaloids in the treatment of Parkinson's Syndrome. [32]

**Toxicity Produced By *H.niger* Seeds**

All plant parts contain tropane alkaloids (hyoscyamine, hyoscine and atropine) and toxic to humans and animals when ingested in large doses. Neither drying nor boiling destroys the active principle.[17]

*Hyoscyamus niger* has anticholinergic property.[23] In higher doses, it produces anticholinergic syndrome characterised as,

"Hot as fire, red as beet, dry as a bone
Blind as a bat and mad as a hen"

**CNS Effects Produced By Higher Doses of *H.niger***

The CNS effects are nausea, restlessness, anxiety, vomiting, hallucination, mania and convulsions.

With very high dose, CNS excitation is followed by severe depression, coma and paralysis of medullary centres. It rises body temperature up to $109^0$F which is common in children and infants. Respiration is initially rapid, subsequently there may be respiratory arrest. B.P may rise or fall.

**Peripheral Effects**

Mydriasis, xerotomia, dysphagia, excessive thirst, difficulty in micturation, diminished intestinal peristalisis, palpitation, tachycardia, cardiac tacharrhythmias, peripheral cutaneous vasodilatation, skin rash etc.

**Antidotes[17]**

Honey, honeyed water, goat's milk, fennel seeds, nettle seeds, mustard, radish, pine kernels with sweet wine, onions or garlic with wine.

**Studies on Kurosaniomam**

1. 2002 – 04 – 2427 (Ma. C.Y., Liu W.K., Che C.T)., Department of Chemistry Hong Kong University of Science and Technology. Lignanamides and non alkaloidal components of *H.niger* seeds, Journal of natural products, Vol 65 (2): page 206 – 209, 2002.

2. 2006 – 04 – 1947 Page no 517, MAPA; Hyosgerin, a new optically active coumarinolignan isolated from the seeds of H.niger.

3. 2005 – 06 – 3108 Page no 760 MAPA; The complete amino acid sequences of 2Fe – 2S Ferredoxin from *Atropa belladonna* and *H.niger* was determined by automated Edman degradation of the entire S – Carboxymethyl cysteinyl proteins and of the peptides obtained by enzymatic digestion.

4. PubMed: Some activities of 7 vegetable extracts including *H.niger* & *A..belladonna,* & an association of them given by oral route were tested on C.N.S. of mouse. *H.niger* proved to be active in one of the tests performed. [Article in Italian] Della Loggia 1981 (Pharmacodynamics)

5. PubMed: [Thiophosphoric acid derivatives of ethylamine, DL-methionine, and L-proline ethyl esters. IV. Biological activities in seeds of *H.niger*] Klee 1962 (Pharmacodynamics)

6. PubMed: Three withanolide class steroids were isolated from the seeds of *H.niger*. Two of them were identified as daturalactone-4(1) and Nic-3 (which is now named hyoscyamilactol. Ma 1999.

7. PubMed: The seeds of A. belladonna, *Datura fastuosa*, *D.stramonium* & *H.niger* were investigated for isolation & anti-microbial activity of non-alkaloidal constituents. The compounds were separated by coloumn chromatography & identified by IR & UV spectral studies. Khan 1992

# Part - 1
# A Study on Kurosaniomam for Azhal Keelvayu

## Materials, Methods and Results
## Preparation of the Drug


Kurosaniomam Seeds


Kurosanioma Churanam

# 4. Materials, Methods and Results

## 4.1 Preparation of the drug

The seeds of **Kurosaniomam** were taken for study. The seeds of Kurosaniomam ***(H.niger)*** were purchased from Gautham Global Seed Merchants; Dehradun. The drug was identified and confirmed by the botanist.

Initially the seeds are garbled and sieved, then made into powder. The powder is coarse, due to the oil content. Then it was purified by Pittavial method.

| | |
|---|---|
| Route of administration | - Enteral route |
| Dose | - 300mg |
| Vehicle | - Water |

# Part - 1
# A Study on Kurosaniomam for Azhal Keelvayu

## Materials, Methods and Results
## Pharmacognostic Study

## 4.2 Pharmacognostic Study

Market samples of the drug '**Kurosaniomam**' was procured from 'Gautham Global Seed Merchants' Dehradun under the name *H.niger* and identified by Dr.Sasikala Ethirajulu, Research Officer (Pharmacognosy), Central Research Institute For Siddha, Arumbakkam, Chennai-106, based on the macroscopic characters of the drug.

The dried seeds procured from the drug dealer were revived by boiling them in teepal-water mixture. This procedure enabled the tissues of the specimens to regain their original form and dimensions. They were sectioned and stained with safranin.

**Macroscopic:**

Seeds are (small 0.8x1 – 1x1.5mm in size), laterally compressed, scrobiculate,exarillate and albuminous. They are dark brown in colour with finely reticulate seed coat having a pungent tobacco like smell and a characteristic bitter taste. Weight of one hundred seeds varies from 4to7gm.

**Microscopic:**

The seeds in longitudinal section shows a circular outline and is all-round covered by a 0.14-0.21 mm thick seed coat which reveals a simple histological structure .The outermost envelope of seed i.e., the epidermis is composed of a single row of thick walled radially elongated cells, the outer walls of which are thin, but lateral and interior ones are very much thickened. They show a close affinity to macrosclereids. The second layer which made up of comparative small tangentially extended cells which are closely applied to one another. Vascular bundles are short and generally not reaching the endosperm. Endosperm is cellular polyhedral, parenchymatous, thin walled containing aleurone grains and oil globules. Parenchymatous cells of cotyledons are also thin walled.

**Study of the Powdered Drug:**

The seed powder is characterized by blackish brown colour, pungent odour, and a bitter taste. The seed powder when cleared with 75% chloral hydrate under the microscope shows fragments of columnar palisade cells, xylem elements with usually spiral thickenings, some thin-walled parenchyma cells and abundance of small,roundish oil globules and aleurone grains.

**Reaction of Chemicals with Crude Powdered Drug - Table -1**

| CHEMICALS TREATED | OBSERVATION |
|---|---|
| Treated with sulphuric acid (66%) solution | Blackish brown colour |
| Treated with sodium hydroxide (5%) solution | Dull Yellow colour |
| Treated with ferric chloride (5%) Solution | Yellow colour |
| Treated with sodium hydroxide (5%) solution and heated | Yellow colour |

**Fluorescence Analysis of the Powdered Drug - Table -2**

| Treatment | ORDINARY LIGHT | UV LIGHT (254nm) |
|---|---|---|
| Acetone | yellow | light green |
| Benzene | greenish yellow | pale green |
| Chloroform | dull light brown | pale green |
| Ethanol | greenish yellow | yellowish green |
| Petroleum ether | light greenish yellow | pale yellowish green |
| Ether | light green | light greenish yellow |
| Methanol | yellowish green | whitish green |
| Distilled water | colourless | pale green |
| Powder as such | blackish brown | brown black |

# Part - 1
# A Study on Kurosaniomam for Azhal Keelvayu

## Materials, Methods and Results
## Bio-Chemical Analysis

## 4.3 Bio-Chemical Analysis:

(Dept of Bio Chemistry, GSMC, Chennai)

**Preparation of Extract:**

5 gm of **Kurosanioma Churanam** is weighed accurately and placed in 250 ml clean beaker and 50 ml of distilled water is added. Then it is boiled for about 10 minutes. After which it is cooled and filtered in a 100 ml volumetric flask and made up to 100 ml with distilled water.

**Test for acid radicals - oxalate:**

| Experiment | Observation | Inference |
|---|---|---|
| 5 drops of clear extract is added with 2ml of dilute sulphuric acid and slightly warmed. To this, 1 ml of dilute potassium permanganate solution is added. | Potassium permanganate solution is decolourised | Presence of oxalate. |

Reveals the presence of Oxalates.

# Part - 1
# A Study on Kurosaniomam for Azhal Keelvayu

## Materials, Methods and Results
## Preliminary Phytochemical Analysis

## 4.4 Preliminary Phytochemical Study

This study was done at Vel's College of Pharmacy, Velan Nagar, Pallavaram Chennai - 600 117, Tamil Nadu, India.

The following tests were done:

- For Alkaloids - Mayer's test, Dragendroff's test.
- For Carbohydrates and Glycosides - Molisch's test and Borntrager's test.
- For Cardiac Glycosides - Legal's test and Keller-killiani test.
- For Sugars - Fehling's test and Benedict's test.
- For Steroids - Liebermann's Burchard test and Salkowski test.
- For Tannins.
- For Proteins - Millon's reagent, Biuret test, Ninhydrin test, Xanthoprotein test.
- For Terpenoids - Noller's test.
- Tests for Flavonoids - Shinoda test.
- For Anthocyanins.
- For Quinones.

The results are given in table – 3.

**Preliminary Phytochemical Study of Kurosanioma Churanam - Table – 3**

| TESTED FOR | RESULT |
|---|---|
| Carbohydrates and Glycosides<br>• Molish's Test<br>• Legal's Test<br>• Borntrager's Test | Absent |
| Alkaloids<br>• Mayer's reagent<br>• Dragendroff's reagent<br>• Hager's reagent<br>• Wagner's reagent | Present |
| Phytosterol<br>• Libermann Burchard Test | Present |
| Fixed Oils<br>• Spot Test | Present |
| Gums and Mucilages | Absent |
| Saponins | Absent |
| Proteins and Free Amino Acids<br>• Million's reagent<br>• Ninhydrin reagent<br>• Biuret test | Present |
| Phenolic Compounds and Tannins | Present |
| Flavonoids<br>• Shinoda's Test | Present |
| Triterpenoids | Present |
| Steroids | Present |

# Part - 1
# A Study on Kurosaniomam for Azhal Keelvayu

## Materials, Methods and Results
## Pharmacological Study

## 4.5 Pharmacological Studies

### Acute Toxicity Study of Kurosanioma Churanam

### Animals

Albino mice were used in this study; they were maintained under standard animal house conditions, fed on commercial feed pellet, and water *ad libitum*. All experimental protocols were approved by IAEC.

### Acute toxicity

Healthy albino mice of either sex, weighing around 22-28 g, and overnight-fasted, were used for study. Food was withdrawn during the study, however free access to water was provided. The weighed animals were randomly assigned to seven groups of six animals each (n=6), and were administered the kurosanioma churanam orally, in the increasing doses 50, 100, 500, 1000, 2000 and 4000 mg/kg, (Table-4).

### Acute toxicity-Results of Kurosanioma Churanam

Death was recorded during the treatment period in 1500mg/kg dose given groups orally. Hence it can be concluded that a test substance is practically toxic after an acute exposure to 1500mg/kg dose.

**Incremental dose finding experiment and its signs of toxicity (Table – 4)**

| No | Treatment | Dose mg/ml/kg | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. | I | 100 | + | + | - | + | + | + | - | + | - | - | - | - | - | - | - | + | - | - | - | - |
| 2 | II | 250 | + | + | - | + | + | + | - | + | - | - | - | - | - | - | - | + | - | - | - | - |
| 3 | III | 500 | + | + | - | + | + | + | - | + | - | - | - | - | - | - | - | + | - | - | - | - |
| 4 | IV | 1000 | + | + | - | + | + | + | - | + | - | - | - | - | - | + | - | + | - | - | + | + |
| 5 | V | 1500 | + | + | - | + | + | + | - | + | - | - | - | - | - | + | - | + | - | + | ++ | 3+ |
| 6 | VI | 2000 | + | + | + | + | + | + | - | + | + | + | - | - | - | + | - | + | + | + | ++ | 4+ |
| 7 | VII | 4000 | + | + | + | + | + | + | - | + | + | + | -- | - | - | + | + | + | + | + | ++ | 6+ |

1. Alertness 2. Aggressiveness 3. Pile erection 4. Grooming 5. Gripping 6. Touch Response 7. Increased Motor Activity 8. Tremors 9. Convulsions 10. Muscle Spasm 11. Catatonia 12. Muscle relaxant 13. Hypnosis 14. Analgesia 15.Lacrimation 16. Exophthalmos 17. Diarrhoea 18. Writhing 19. Respiration 20. Number of Deaths (Mortality)

**Anti-inflammatory and Analgesic Studies**

**Materials and Methods**

**Animals**

Male Wister rats weighing approximately 150 g and male albino mice weighing approximately 30 g were chosen for anti-inflammatory and analgesic studies, respectively. They were kept in polypropylene cages in groups of six animals each, fed with standard rat feed and given water *ad libitum*.

**Anti-inflammatory study**

**Formalin induced oedema in rats:**

In this method 0.1 ml. of 2% of Formalin was injected in the plantar aponeurosis of the right hind paw for all rats. Overnight – fasted Wistar rats were randomly assigned to 3 groups. Each group consisted of six animals. The first group of rats was treated with vehicle alone. Second group was treated with the standard drug, diclofenac at the dose rate of 45mg/ kg body weight. Other two groups were treated with Kurosanioma churanam suspended in 2% CMC vehicle, administered orally at the dose rate of 150 and 300mg/kg body weight, respectively. Paw volume was measured before and two hours after Formalin injection by Plethysmograph. Percentage of activity was calculated by the formula (1- T/C) 100, where T and C are the mean values of the drug treated and the control group, respectively. (Ref. Table – 5).

**Anti-Inflammatory Study Results**

The development of oedema is bi-phasic, the first phase is attributed to the release of histamine, 5-HT and kinins, while, and the second phase is related to the release of prostaglandins. Administration of Kurosanioma churanam and diclofenac at 45mg/ kg at the doses employed in Formalin induced inflammation in rats showed significant inhibition of paw edema, ($p<0.01$). Results showed that administration of Kurosanioma churanam at a dose of 150mg/kg and 300mg/kg exhibited moderately significant anti-inflammatory effect.

**Effect of Kurosanioma Churanam on Formalin - induced edema in hind paw of rats (Table 5)**

| S.no | Treatment | Dose (mg/kg) | Mean increase in paw volume (Mean±SEM) | Percentage inhibition |
|---|---|---|---|---|
| 1 | Control | 5ml/kg | 0.42±0.56 | ---- |
| 2 | Diclofenac sodium | 25mg/kg | 0.26±0.08** | 38.09 |
| 3 | K.O.C. | 150mg/kg | 0.32±0.64* | 23.80 |
| 4 | K.O.C. | 300mg/kg | 0.29±0.71** | 30.95 |

*P<0.05; **P<0.01 compared to control.

**Analgesic Study**

The present study was undertaken to study its analgesic effect in mice. Analgesic activiy was assessed by the method of Eddy's hot plate following oral (150 and 300 mg/kg) administration of the Kurosanioma churanam in groups of 6 mice each. The Kurosanioma churanam was effective by oral route as tested by this method. The duration as well as intensity of analgesia was dose dependent. Analgesic effect lasted for a period of 2 hrs was found to possess significant ($P < 0.01$) analgesic activity by Eddy's hot plate method. (Table-6).

**Analgesic Study Results**

Results of the current study demonstrated that treatment with Kurosanioma churanam at moderate dose showed significant analgesic effect. The analgesic effect of the drug as observed by Eddy's hot plate method was dose related. The analgesic effect of this drug when used may be of great value in relief of pain.

**Effect of Kurosanioma churanam on reaction time in albino mice (Table 6)**

| .Treatment | Dose mg/Kg | No of animals | Reaction time in sec. before drug | Reaction time after drug treatment | | |
|---|---|---|---|---|---|---|
| | | | | 30min | 60min | 120min |
| K.O.C | 150 | 6 | 2.16 ± 0.307 | 2.33±0.16ns | 3.48±0.43* | 3.8 ±0.39* |
| K.O.C | 300 | 6 | 2.25 ± 0.390 | 2.99 ± 0.30* | 4.4 ± 0.61** | 5.2 ±0.28** |
| Pentazocin | 5 | 6 | 2.29 ± 0.301 | 6.12± 0.42** | 10.2 ± 1.2* | 10.6 ± 1.8** |
| Control | --- | 6 | 2.30±0.335 | 2.41±0.96 | 2.21±0.62 | 2.86±0.88 |

*P<0.05; **P<0.01 compared to control.

# Part - 1
# A Study on Kurosaniomam for Azhal Keelvayu

## Materials, Methods and Results
## Clinical Study

## ABOUT THE DISEASE

### அழல்கீல்வாயு

அழல்கீல்வாயு, கீல்வாயுவின் பத்து வகைகளுள் ஒன்றாகக் கூறப்பட்டுள்ளது.

**இயல்**[26]

கீல்களில் வீக்கம், குத்தல், நோதல், நீட்ட, மடக்க முடியாமை, அசைக்க முடியாமை ஆகிய தாபித குறிகுணங்களோடு, படுக்கையிலிருத்தி ஐயமும் கூடி சுரம் முதலியவற்றையுண்டாக்கும் இயல்புடைய நோயாம்.

**நோய் வரும் வழி**

வளிக் குற்றத்தைப் பெருக்கக் கூடிய உணவாதி செயல்களாலும், குளிர்ச்சியான பொருட்களை உண்பதாலும், குளிர்காற்றிலீடுபடல், மழையில் நனைதல், பனியில் படுத்தல், உயர்ந்த மலையில் தங்கல் முதலிய ஐயப்பெருக்கையுண்டாக்கும் செயல்களால், வளி ஐயமாகி இந்நோய் பிறக்கும். தாய்-தந்தையரின் வழியாகவும் வருவதுண்டு.

**அழல்கீல் வாயு**

**"பித்தக்கீல் வாய்வு தன்னாற்**
**பிறங்கு கீன் முட்டு வீங்கி**
**சித்தா செய் மருந்து வத்துஞ்**
**சீர்படாத் தன்மைத்தாகித்**
**தத்தறு காய்ச்சல் கண்டு**
**சால வேதனைதான் தந்தே**
**மெத்தறு சிகிச்சை தன்னால்**
**மென்மெல நீங்குமப்பா"**

- சபாபதி கையேடு

வளி அழல் குற்றங்களைத் தூண்டக்கூடிய உணவாதி செயல்களால் மூட்டிகளிலுண்டாகும் வீக்கம் நாளுக்கு நாள் பெருத்துக்கொண்டே வந்து, தீக்குற்ற மிகுதியால் கீல்களின் பசை வறண்டு, கீல் அசையும் போதெல்லாம், நட்டையுடைதலும் 'கலுக்', 'கலுக்' என்ற ஒலி உண்டாவதுமாய் இருக்கும். சிலவேளைகளில் கீல்களிலுள்ள

பொருத்துகள் ஒன்றோடொன்று ஒட்டிக்கொண்டு ஒரு கழியைப் போல மடக்க முடியாமலே நின்றுவிடுவதுமுண்டு. சிறு சுரமும் காயும்.

**நாடிநடை**

"வாதத்தில் சேத்துமமாகில் வலியோடு வீக்கமுண்டாம்"

– அகத்தியர் நாடி

"வாட்டிடுஞ் சேத்துமத்தில் வந்திடும் வாதமாகில்
நாட்டிய கால்கள்போல நரம்பெல்லாம் வலித்து நிற்கும்"

– அகத்தியர் நாடி

"அறிந்துபார் வாதமே தனித்ததானால்
சரிந்திடவே கால்முடக்கும் போதுக்காட்டும்"

– அகத்தியர் ரத்தினச் சுருக்கம்

"திருத்தமாம் வாதத்தோடே தீங்கோடு பித்தஞ்சேரில்
பொருத்துகள் தோறும் நொந்து போதவே பிடிக்கும் சூலை"

– குணவாகடம்–நோயின்சாரம்

"இடமான சேத்துமத்தில் பித்தநாடி
எழுந்தணுகில் விடமுடனேவீக்கமுண்டாம்
.....
தேகத்திலுளைச்சல்....."

– சதகநாடி

என்பதினால்,

வளிஐயக்கலப்பு, ஐயவளிக்கலப்பு, வளிநாடி தனித்து மிகுதியாதல், வளியழல்கலப்பு, ஐயழல் கலப்பு ஆகிய முக்குற்ற பேதங்களில், கீல்வாயுக் குறிகுணங்களில் ஒன்று அல்லது பலவற்றைப் பிறப்பிக்கும்.

## 4.6 Clinical Study

This was an open non comparative clinical trial

The clinical study was carried out in Gunapadam Post Graduate Out Patient Department, Arignar Anna Hospital, Chennai-106.

**Selection of Patients**

60 patients were selected in both sexes. The selection of patients was based on the following inclusion and exclusion criteria.

**Inclusion Criteria**

- Age - 40 and above
- Sex – both male and female
- Pain-knee joint only
- Swelling
- Crepitus
- Restricted movements

**Exclusion Criteria**

- Fever
- Pain in other joints other than knee
- Effusion
- Other types of arthritis.

**Withdrawal Criteria**

- Irregular treatment
- Patients who followed dual treatment

**Treatment Schedule**

- 'Kurosanioma churanam'-300mg, two times a day, after food.
- Vehicle-water
- Route of administration-enteral route
- Duration -6 weeks

**Study Procedures**

60 patients were selected for clinical trial on the basis of inclusion criteria. For all the cases full clinical data was recorded and they were diagnosed on the basis of Siddha principles and Modern parameters.

The patients were followed up for 6 weeks and the evaluation was recorded at the end of each week and a complete clinical and the following lab investigations were done at the first week and at the end of the 6th week.

- Urine routine
- Blood
    - TC,DC, ESR
    - Sugar(R), Urea, Cholesterol
- X- ray knee joint

**Medical Advice and Diet**

The patients were advised,

- To take easily digestible and nutritive food
- To avoid food aggravating **VATHA**, eg: tubers, dhal etc
- To avoid exposure to cold and damp environment
- To perform mild exercises, those strengthen the quadriceps muscles.
- To avoid non veg. diet, smoking and alcohol. To take rest, but avoid prolonged immobilization which leads to joint stiffness and further incapacitate to walk.
- To perform yoga.

**Bio-Statistical Analysis:**

The statistical analysis of the clinical observations was analyzed with the help of a statistician where the following two tests were used to find the significance of the results.

**T – Test:** The t- test is a statistical test that helps to show if there is a real difference between different treatments / phases of treatments being tested in a controlled clinical trial.

**Chi square test:** A statistical test used to determine the probability of obtaining the observed results by chance, under a specific hypothesis.

| S. No | OP. No | Name | Age | Sex | Occup-ation | Duration | | Compliants | Stage | Blood | | | | | | | | | Urine | | | X-ray | Results |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | From | To | | | TC | DC - % | | | ESR - mm | | Sug-R | Chl | Urea | Alb | Sug | Dep | KJ | |
| | | | | | | | | | | cells/cu.mm | P | L | E | 1/2hr | 1hr | mg/dl | mg/dl | mg/dl | | | | | |
| 1 | 1615 | Thara | 50 | F | House wife | 11/06/07 | 23/07/07 | Pain, Crepitus, RM | Before | 10000 | 60 | 34 | 6 | 4 | 10 | 130 | 205 | 29 | Nil | Nil | Few Epicells | Osteophytes | Good |
| | | | | | | | | | After | 9800 | 55 | 40 | 5 | 8 | 13 | 128 | 186 | 24 | Nil | Nil | Few Epicells | | |
| 2 | 1649 | Anand | 41 | M | Tailor | 11/06/07 | 12/07/07 | Pain, Crepitus, RM | Before | 9400 | 55 | 41 | 4 | 2 | 3 | 80 | 171 | 18 | Nil | Nil | Few Epicells | Narrowing of jt. Space | Good |
| | | | | | | | | | After | 9800 | 60 | 34 | 6 | 10 | 14 | 113 | 188 | 19 | Nil | Nil | Occ Puscells | | |
| 3 | 1547 | Gopi | 50 | M | Vendor | 11/06/07 | 20/07/07 | Pain, Crepitus, swelling, RM | Before | 9200 | 58 | 38 | 4 | 10 | 15 | 113 | 182 | 29 | Nil | Nil | Few Epicells | Osteophytes Narrowing of Jt. Space | Good |
| | | | | | | | | | After | 9400 | 54 | 42 | 4 | 8 | 15 | 92 | 173 | 23 | Nil | Nil | Few Epicells | | |
| 4 | 1540 | Ansar | 55 | M | Attender | 11/06/07 | 10/07/07 | Pain, Crepitus, swelling, RM | Before | 10200 | 63 | 32 | 5 | 5 | 9 | 172 | 160 | 27 | Nil | Nil | Few Epicells | Osteophytes Narrowing of Jt. Space | Good |
| | | | | | | | | | After | 9200 | 60 | 34 | 6 | 5 | 10 | 162 | 170 | 29 | Nil | Nil | Occ Puscells | | |
| 5 | 1600 | Kaleel | 45 | M | Peon | 11/06/07 | 20/07/07 | Pain, swelling, RM | Before | 9600 | 65 | 30 | 5 | 12 | 18 | 138 | 179 | 29 | Nil | Nil | Few Epicells | Osteophytes | Good |
| | | | | | | | | | After | 9400 | 65 | 32 | 3 | 6 | 13 | 142 | 183 | 26 | Nil | Nil | Few Epicells | | |
| 6 | 1863 | Srinivasan | 63 | M | Labourer | 12/06/07 | 20/07/07 | Pain, Crepitus, swelling, RM | Before | 9800 | 59 | 40 | 1 | 7 | 10 | 130 | 145 | 20 | Nil | Nil | Few Epicells | Osteophytes Narrowing of Jt. Space Soft tissue swelling | Moderate |
| | | | | | | | | | After | 9800 | 69 | 30 | 1 | 9 | 12 | 100 | 143 | 20 | Nil | Nil | Few Epicells | | |
| 7 | 3715 | Sikkandhar Beevi | 50 | F | House wife | 18/06/07 | 01/08/07 | Pain, swelling, RM | Before | 9800 | 60 | 34 | 6 | 15 | 34 | 113 | 205 | 19 | Nil | Nil | Few Epicells | Narrowing of jt. Space | Good |
| | | | | | | | | | After | 9600 | 62 | 33 | 5 | 12 | 20 | 100 | 200 | 18 | Nil | Nil | Few Epicells | | |
| 8 | 4341 | Vasantha | 57 | F | House wife | 19/06/07 | 23/07/07 | Pain, Crepitus, RM | Before | 9200 | 58 | 36 | 6 | 12 | 20 | 188 | 193 | 23 | Nil | Nil | Occ Puscells | Osteophytes Narrowing of Jt. Space | Moderate |
| | | | | | | | | | After | 9400 | 62 | 34 | 4 | 10 | 15 | 200 | 180 | 20 | Nil | ++ | Few Epicells | | |
| 9 | 4320 | Gunavathi | 52 | F | House wife | 19/06/07 | 23/07/07 | Pain, Crepitus, RM | Before | 9700 | 58 | 36 | 6 | 12 | 20 | 170 | 210 | 25 | Nil | +++ | Few Epicells | Osteophytes Narrowing of Jt. Space | Moderate |
| | | | | | | | | | After | 9200 | 58 | 36 | 6 | 10 | 20 | 180 | 193 | 23 | Nil | ++ | Occ Puscells | | |
| 10 | 1623 | Kasthuri | 55 | F | House wife | 20/06/07 | 13/07/07 | Pain, Crepitus, swelling, RM | Before | 10200 | 64 | 31 | 6 | 12 | 20 | 132 | 150 | 16 | Nil | Nil | Few Epicells | Osteophytes Narrowing of Jt. Space | Moderate |
| | | | | | | | | | After | 9800 | 58 | 38 | 4 | 10 | 18 | 140 | 132 | 12 | Nil | Nil | Few Epicells | | |
| 11 | 4517 | Maheswari | 57 | F | Veg Vendor | 20/06/07 | 19/07/07 | Pain, swelling, RM | Before | 10200 | 58 | 36 | 6 | 5 | 12 | 289 | 182 | 24 | Nil | ++ | Occ Puscells | Narrowing of jt. Space Soft tissue swelling | Moderate |
| | | | | | | | | | After | 9800 | 56 | 41 | 3 | 8 | 12 | 232 | 180 | 24 | Nil | + | Few Epicells | | |
| 12 | 5914 | Imam | 46 | M | Shop keeper | 25/06/07 | 10/08/07 | Pain, Crepitus, RM | Before | 10100 | 62 | 28 | 10 | 12 | 20 | 135 | 192 | 18 | Nil | Nil | Few Epicells | Narrowing of jt. Space | Good |
| | | | | | | | | | After | 9800 | 56 | 98 | 6 | 7 | 15 | 128 | 200 | 17 | Nil | Nil | Few Epicells | | |
| 13 | 6060 | Bhavani | 43 | F | House wife | 25/06/07 | 23/07/07 | Pain, swelling, RM | Before | 9400 | 53 | 30 | 7 | 12 | 25 | 125 | 179 | 23 | Nil | Nil | Occ Puscells | Narrowing of jt. Space | Good |
| | | | | | | | | | After | 8600 | 60 | 36 | 4 | 5 | 8 | 120 | 162 | 19 | Nil | Nil | Few Epicells | | |
| 14 | 6195 | Jayalakshmi | 63 | F | House wife | 25/06/07 | 07/08/07 | Pain, swelling, RM | Before | 9800 | 59 | 36 | 5 | 24 | 50 | 98 | 210 | 19 | Nil | Nil | Few Epicells | Osteophytes | Good |
| | | | | | | | | | After | 9600 | 56 | 40 | 4 | 12 | 20 | 102 | 192 | 20 | Nil | Nil | Few Epicells | | |
| 15 | 6839 | Noor Jahan | 47 | F | House wife | 27/06/07 | 07/08/07 | Pain, Crepitus, swelling, RM | Before | 9800 | 60 | 34 | 6 | 32 | 60 | 118 | 180 | 19 | Nil | Nil | Few Epicells | Osteophytes | Good |
| | | | | | | | | | After | 9400 | 63 | 32 | 5 | 15 | 22 | 110 | 172 | 19 | Nil | Nil | Few Epicells | | |
| 16 | 6837 | Shanu | 40 | M | Vendor | 27/06/07 | 07/08/07 | Pain, Crepitus, swelling, RM | Before | 9200 | 57 | 38 | 5 | 20 | 44 | 114 | 155 | 23 | Nil | Nil | Few Epicells | Osteophytes | Good |
| | | | | | | | | | After | 9400 | 58 | 39 | 3 | 13 | 18 | 120 | 162 | 18 | Nil | Nil | Few Epicells | | |

| S. No | OP. No | Name | Age | Sex | Occup-ation | Duration | | Compliants | Stage | Blood | | | | | | | | | Urine | | | X-ray | Results |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | From | To | | | TC | DC - % | | | ESR - mm | | Sug-R | Chl | Urea | Alb | Sug | Dep | KJ | |
| | | | | | | | | | | cells/cu.mm | P | L | E | 1/2hr | 1hr | mg/dl | mg/dl | mg/dl | | | | | |
| 17 | 6828 | Shanmugam | 42 | M | Tailor | 27/06/07 | 01/08/07 | Pain, swelling, RM | Before | 9400 | 57 | 39 | 4 | 5 | 14 | 89 | 208 | 28 | Nil | Nil | Occ Puscells | Narrowing of jt. Space | Moderate |
| | | | | | | | | | After | 9800 | 54 | 42 | 4 | 8 | 12 | 98 | 202 | 22 | Nil | Nil | Occ Puscells | | |
| 18 | 7265 | Ettiyappan | 50 | M | Labourer | 28/06/07 | 01/08/07 | Pain, Crepitus, RM | Before | 9200 | 55 | 41 | 4 | 11 | 20 | 238 | 210 | 27 | Nil | ++ | Few Epicells | Osteophytes | Moderate |
| | | | | | | | | | After | 9220 | 60 | 36 | 4 | 12 | 18 | 192 | 208 | 22 | Nil | ++ | Few Epicells | | |
| 19 | 8456 | Bhanumathi | 40 | F | House wife | 02/07/07 | 07/08/07 | Pain, swelling, RM | Before | 6100 | 81 | 13 | 6 | 9 | 20 | 97 | 188 | 18 | Nil | Nil | Nil | Osteophytes | Good |
| | | | | | | | | | After | 8000 | 70 | 27 | 3 | 4 | 10 | 92 | 172 | 20 | Nil | Nil | Few Epicells | | |
| 20 | 8673 | Chandra | 55 | F | House wife | 02/07/07 | 07/08/07 | Pain, swelling, RM | Before | 10000 | 63 | 32 | 5 | 5 | 12 | 132 | 159 | 28 | Nil | Nil | Occ Puscells | Osteophytes | Good |
| | | | | | | | | | After | 9400 | 58 | 37 | 5 | 7 | 15 | 128 | 163 | 24 | Nil | Nil | Few Epicells | | |
| 21 | 8692 | Malliga | 55 | F | House wife | 02/07/07 | 07/08/07 | Pain, Crepitus, swelling, RM | Before | 8000 | 55 | 38 | 7 | 5 | 12 | 101 | 125 | 21 | Nil | Nil | Occ Puscells | Osteophytes | Good |
| | | | | | | | | | After | 8400 | 67 | 30 | 3 | 7 | 12 | 98 | 132 | 18 | Nil | Nil | Few Epicells | | |
| 22 | 1674 | Lakshmi | 48 | F | House wife | 03/07/07 | 14/08/07 | Pain, Crepitus, swelling, RM | Before | 10200 | 63 | 32 | 5 | 12 | 20 | 93 | 175 | 18 | Nil | Nil | Occ Puscells | Osteophytes Narrowing of Jt. Space | Moderate |
| | | | | | | | | | After | 9600 | 62 | 34 | 4 | 8 | 16 | 92 | 56 | 18 | Nil | Nil | Few Epicells | | |
| 23 | 8995 | Gowri | 62 | F | House wife | 03/07/07 | 14/08/07 | Pain, RM | Before | 5400 | 52 | 45 | 3 | 8 | 15 | 104 | 193 | 24 | Nil | Nil | Nil | Osteophytes | Good |
| | | | | | | | | | After | 7600 | 65 | 30 | 5 | 4 | 8 | 118 | 190 | 20 | Nil | Nil | Few Epicells | | |
| 24 | 9032 | Shanthi | 41 | F | Servant Maid | 03/07/07 | 17/08/07 | Pain, swelling, RM | Before | 10700 | 65 | 31 | 4 | 20 | 36 | 109 | 183 | 23 | + | Nil | Occ Puscells | Osteophytes | Moderate |
| | | | | | | | | | After | 9800 | 62 | 33 | 5 | 14 | 26 | 112 | 192 | 22 | Nil | Nil | Few Epicells | | |
| 25 | 9304 | Jothi | 47 | F | Cook | 04/07/07 | 17/08/07 | Pain, Crepitus, RM | Before | 10600 | 63 | 32 | 5 | 25 | 52 | 138 | 182 | 18 | Nil | Nil | Few Epicells | Narrowing of jt. Space | Moderate |
| | | | | | | | | | After | 9600 | 55 | 41 | 4 | 21 | 32 | 123 | 188 | 20 | Nil | Nil | Few Epicells | | |
| 26 | 9371 | Usha | 48 | F | House wife | 04/07/07 | 17/08/07 | Pain, Crepitus, RM | Before | 8700 | 53 | 39 | 8 | 20 | 44 | 88 | 182 | 18 | Nil | Nil | Few Epicells | Osteophytes Narrowing of Jt. Space | Moderate |
| | | | | | | | | | After | 9200 | 58 | 37 | 5 | 18 | 20 | 98 | 188 | 18 | Nil | Nil | Few Epicells | | |
| 27 | 9391 | Sivaneswari | 55 | F | House wife | 04/07/07 | 09/08/07 | Pain, Crepitus, swelling, RM | Before | 10200 | 68 | 26 | 6 | 20 | 38 | 105 | 180 | 22 | Nil | Nil | Few Epicells | Osteophytes | Good |
| | | | | | | | | | After | 9400 | 52 | 43 | 5 | 16 | 22 | 98 | 172 | 20 | Nil | Nil | Few Epicells | | |
| 28 | 9417 | Padmavathi | 53 | F | House wife | 04/07/07 | 17/08/07 | Pain, Crepitus, swelling, RM | Before | 9800 | 57 | 38 | 5 | 25 | 26 | 163 | 208 | 21 | Nil | Nil | Few Epicells | Osteophytes Narrowing of Jt. Space Soft tissue swelling | Good |
| | | | | | | | | | After | 9800 | 62 | 34 | 4 | 14 | 28 | 152 | 192 | 20 | Nil | Nil | Few Epicells | | |
| 29 | 9494 | Radha | 49 | F | House wife | 04/07/07 | 15/08/07 | Pain, Crepitus, swelling, RM | Before | 9400 | 50 | 45 | 5 | 12 | 28 | 180 | 182 | 22 | + | + | Occ Puscells | Narrowing of jt. Space | Moderate |
| | | | | | | | | | After | 9600 | 54 | 40 | 6 | 10 | 18 | 166 | 178 | 18 | Nil | + | Few Epicells | | |
| 30 | 9479 | Deivanai | 54 | F | Cook | 04/07/07 | 09/08/07 | Pain, Crepitus, swelling, RM | Before | 9800 | 52 | 42 | 6 | 11 | 12 | 109 | 165 | 20 | Nil | Nil | Few Epicells | Osteophytes Narrowing of Jt. Space | Good |
| | | | | | | | | | After | 9600 | 66 | 30 | 4 | 5 | 13 | 98 | 153 | 80 | Nil | Nil | Occ Puscells | | |
| 31 | 9654 | Neela | 45 | F | House wife | 05/07/07 | 10/08/07 | Pain, Crepitus, swelling, RM | Before | 9400 | 58 | 36 | 6 | 5 | 12 | 102 | 162 | 18 | Nil | Nil | Few Epicells | Osteophytes Narrowing of Jt. Space | Moderate |
| | | | | | | | | | After | 8900 | 54 | 42 | 4 | 4 | 10 | 100 | 158 | 20 | Nil | Nil | Few Epicells | | |
| 32 | 9673 | Jenova | 47 | F | Fish Vendor | 05/07/07 | 09/08/07 | Pain, Crepitus, swelling, RM | Before | 10200 | 63 | 33 | 4 | 11 | 20 | 168 | 165 | 28 | Nil | Nil | Few Epicells | Osteophytes Narrowing of Jt. Space Soft tissue swelling | Poor |
| | | | | | | | | | After | 10000 | 65 | 61 | 4 | 12 | 20 | 172 | 164 | 24 | Nil | Nil | Few Epicells | | |

| S. No | OP. No | Name | Age | Sex | Occup-ation | Duration | | Compliants | Stage | Blood | | | | | | | | | Urine | | | X-ray | Results |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | From | To | | | TC | DC - % | | | ESR - mm | | Sug-R | Chl | Urea | Alb | Sug | Dep | KJ | |
| | | | | | | | | | | cells/cu.mm | P | L | E | 1/2hr | 1hr | mg/dl | mg/dl | mg/dl | | | | | |
| 33 | 9708 | Mohan | 42 | M | Labourer | 05/07/07 | 17/08/07 | Pain, RM | Before | 9700 | 58 | 36 | 6 | 15 | 34 | 138 | 173 | 20 | Nil | Nil | Few Epicells | Osteophytes | Good |
| | | | | | | | | | After | 9400 | 60 | 35 | 5 | 13 | 22 | 108 | 178 | 18 | Nil | Nil | Few Epicells | | |
| 34 | 9728 | Selvi | 42 | F | Tailor | 05/07/07 | 14/08/07 | Pain, Crepitus, swelling, RM | Before | 10300 | 60 | 33 | 7 | 34 | 60 | 87 | 182 | 19 | Nil | Nil | Few Epicells | Osteophytes Narrowing of Jt. Space | Good |
| | | | | | | | | | After | 9400 | 59 | 35 | 6 | 18 | 24 | 96 | 152 | 17 | Nil | Nil | Few Epicells | | |
| 35 | 9872 | Pankajam | 65 | F | House wife | 05/07/07 | 06/08/07 | Pain, Crepitus, swelling, RM | Before | 10800 | 62 | 33 | 5 | 11 | 20 | 83 | 177 | 22 | Nil | Nil | Few Epicells | Osteophytes Narrowing of Jt. Space | Moderate |
| | | | | | | | | | After | 9600 | 56 | 40 | 4 | 10 | 13 | 98 | 142 | 20 | Nil | Nil | Few Epicells | | |
| 36 | 41 | Kaladevi | 48 | F | House wife | 06/07/07 | 17/08/07 | Pain, swelling, RM | Before | 9100 | 54 | 41 | 5 | 40 | 84 | 163 | 118 | 18 | Nil | Nil | Few Epicells | Osteophytes | Good |
| | | | | | | | | | After | 9600 | 67 | 30 | 3 | 17 | 22 | 162 | 179 | 18 | Nil | Nil | Few Epicells | | |
| 37 | 1071 | Saroja | 46 | F | House wife | 09/07/07 | 18/08/07 | Pain, swelling, RM | Before | 9100 | 53 | 41 | 6 | 38 | 70 | 98 | 170 | 18 | Nil | Nil | Few Epicells | Osteophytes | Good |
| | | | | | | | | | After | 9200 | 56 | 42 | 2 | 18 | 27 | 104 | 180 | 18 | Nil | Nil | Few Epicells | | |
| 38 | 2590 | Yuvarani | 45 | F | House wife | 13/07/07 | 18/08/07 | Pain, swelling, RM | Before | 10600 | 63 | 29 | 8 | 12 | 20 | 113 | 213 | 23 | Nil | Nil | Few Epicells | Narrowing of jt. Space | Good |
| | | | | | | | | | After | 10200 | 52 | 44 | 4 | 7 | 12 | 89 | 198 | 20 | Nil | Nil | Few Epicells | | |
| 39 | 3533 | Tamil Mani | 48 | M | Labourer | 16/07/07 | 22/08/07 | Pain, swelling, RM | Before | 10600 | 62 | 32 | 6 | 24 | 40 | 120 | 182 | 18 | Nil | Nil | Few Epicells | Osteophytes | Good |
| | | | | | | | | | After | 9800 | 56 | 40 | 4 | 13 | 18 | 118 | 180 | 18 | Nil | Nil | Few Epicells | | |
| 40 | 3532 | Jambukeshwar | 60 | M | carpenter | 16/07/07 | 28/08/07 | Pain, Crepitus, swelling, RM | Before | 9000 | 62 | 34 | 4 | 10 | 14 | 140 | 162 | 23 | Nil | Nil | Occ Puscells | Osteophytes | Good |
| | | | | | | | | | After | 9200 | 52 | 45 | 3 | 5 | 12 | 135 | 163 | 20 | Nil | Nil | Occ Puscells | | |
| 41 | 3684 | Kanniyamma | 66 | F | House wife | 16/07/07 | 15/08/07 | Pain, Crepitus, swelling, RM | Before | 9000 | 59 | 35 | 6 | 30 | 60 | 86 | 169 | 23 | Nil | Nil | Few Epicells | Osteophytes Narrowing of Jt. Space | Good |
| | | | | | | | | | After | 9000 | 64 | 34 | 2 | 9 | 16 | 92 | 172 | 20 | Nil | Nil | Few Epicells | | |
| 42 | 5683 | Kuppammal | 44 | F | Servant Maid | 16/07/08 | 15/08/07 | Pain, Crepitus, swelling, RM | Before | 8800 | 61 | 34 | 5 | 25 | 50 | 85 | 177 | 2 | Nil | Nil | Occ Puscells | Osteophytes | Good |
| | | | | | | | | | After | 9000 | 58 | 38 | 4 | 14 | 23 | 112 | 168 | 20 | Nil | Nil | Few Epicells | | |
| 43 | 4927 | Victor | 42 | M | Painter | 19/07/07 | 28/08/07 | Pain, swelling, RM | Before | 9000 | 61 | 34 | 5 | 15 | 32 | 104 | 120 | 23 | Nil | Nil | Occ Puscells | Osteophytes | Good |
| | | | | | | | | | After | 9400 | 62 | 33 | 5 | 10 | 17 | 113 | 142 | 20 | Nil | Nil | Few Epicells | | |
| 44 | 2223 | Jayalakshmi | 63 | F | House wife | 09/08/07 | 15/09/07 | Pain, Crepitus, swelling, RM | Before | 7900 | 56 | 37 | 7 | 9 | 21 | 82 | 120 | 24 | Nil | Nil | Occ Puscells | Osteophytes Narrowing of Jt. Space | Moderate |
| | | | | | | | | | After | 8800 | 58 | 39 | 3 | 13 | 18 | 102 | 128 | 20 | Nil | Nil | Few Epicells | | |
| 45 | 6753 | Lakshmi | 50 | F | House wife | 12/11/07 | 21/12/07 | Pain, Crepitus, swelling, RM | Before | 9400 | 63 | 30 | 7 | 12 | 25 | 125 | 179 | 23 | Nil | Nil | Few Epicells | Osteophytes | Moderate |
| | | | | | | | | | After | 9600 | 64 | 40 | 6 | 10 | 20 | 118 | 172 | 22 | Nil | Nil | Few Epicells | | |
| 46 | 6311 | Muthulakshmi | 42 | F | House wife | 12/11/07 | 10/12/07 | Pain, Crepitus, swelling, RM | Before | 10200 | 64 | 31 | 5 | 12 | 25 | 120 | 192 | 23 | Nil | Nil | Few Epicells | Osteophytes | Good |
| | | | | | | | | | After | 9600 | 58 | 36 | 6 | 12 | 18 | 122 | 188 | 20 | Nil | Nil | Few Epicells | | |
| 47 | 6294 | Kamatchi | 60 | F | House wife | 12/11/07 | 10/12/07 | Pain, Crepitus, RM | Before | 10000 | 62 | 28 | 10 | 10 | 20 | 140 | 182 | 33 | Nil | Nil | Few Epicells | Narrowing of jt. Space | Good |
| | | | | | | | | | After | 9600 | 64 | 40 | 6 | 6 | 14 | 132 | 179 | 28 | Nil | Nil | Few Epicells | | |
| 48 | 7662 | Kasthuri | 56 | F | Labourer | 16/11/07 | 31/12/07 | Pain, Crepitus, swelling, RM | Before | 9800 | 54 | 35 | 6 | 20 | 44 | 103 | 195 | 19 | Nil | Nil | Occ Puscells | Osteophytes | Good |
| | | | | | | | | | After | 9400 | 60 | 36 | 4 | 10 | 15 | 98 | 182 | 18 | Nil | Nil | Few Epicells | | |

| S. No | OP. No | Name | Age | Sex | Occup-ation | Duration | | Compliants | Stage | Blood | | | | | | | | | Urine | | | X-ray | Results |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | From | To | | | TC | DC - % | | | ESR - mm | | Sug-R | Chl | Urea | Alb | Sug | Dep | KJ | |
| | | | | | | | | | | cells/cu.mm | P | L | E | 1/2hr | 1hr | mg/dl | mg/dl | mg/dl | | | | | |
| 49 | 4884 | Soundararajan | 50 | M | Labourer | 17/11/07 | 17/12/07 | Pain, Crepitus, RM | Before | 10200 | 64 | 31 | 6 | 12 | 20 | 142 | 170 | 20 | Nil | Nil | Occ Puscells | Osteophytes | Good |
| | | | | | | | | | After | 10000 | 52 | 32 | 6 | 8 | 14 | 133 | 158 | 20 | Nil | Nil | Few Epicells | | |
| 50 | 30 | Meena | 50 | F | Nil | 23/11/07 | 21/12/07 | Pain, Crepitus, RM | Before | 10700 | 64 | 30 | 6 | 25 | 54 | 108 | 177 | 18 | Nil | Nil | Few Epicells | Osteophytes Narrowing of Jt. Space | Good |
| | | | | | | | | | After | 10300 | 58 | 36 | 6 | 18 | 26 | 112 | 170 | 18 | Nil | Nil | Few Epicells | | |
| 51 | 376 | Dhanalakshmi | 41 | F | House wife | 03/12/07 | 25/01/08 | Pain, Crepitus, RM | Before | 10200 | 63 | 32 | 5 | 5 | 9 | 122 | 129 | 21 | Nil | Nil | Occ Puscells | Osteophytes Narrowing of Jt. Space | Good |
| | | | | | | | | | After | 9800 | 66 | 29 | 5 | 7 | 16 | 108 | 132 | 20 | Nil | Nil | Few Epicells | | |
| 52 | 7069 | Krishnamurthy | 69 | M | Farmer | 12/12/07 | 25/01/08 | Pain, Crepitus, RM | Before | 8700 | 53 | 41 | 6 | 18 | 40 | 93 | 209 | 28 | Nil | Nil | Few Epicells | Osteophytes | Good |
| | | | | | | | | | After | 8600 | 58 | 37 | 5 | 13 | 28 | 89 | 212 | 24 | Nil | Nil | Few Epicells | | |
| 53 | 6979 | Sundarambal | 60 | F | House wife | 12/12/07 | 25/01/08 | Pain, Crepitus, swelling, RM | Before | 9200 | 62 | 38 | 5 | 11 | 20 | 92 | 120 | 16 | Nil | Nil | Few Epicells | Osteophytes Narrowing of Jt. Space | Good |
| | | | | | | | | | After | 9400 | 59 | 38 | 3 | 7 | 18 | 104 | 132 | 14 | Nil | Nil | Few Epicells | | |
| 54 | 8826 | Karunamurthy | 50 | M | Nil | 17/12/07 | 28/01/08 | Pain, Crepitus, RM | Before | 9800 | 61 | 33 | 6 | 11 | 15 | 86 | 196 | 21 | Nil | Nil | Few Epicells | Narrowing of jt. Space | Good |
| | | | | | | | | | After | 9600 | 64 | 31 | 5 | 4 | 12 | 110 | 180 | 20 | Nil | Nil | Few Epicells | | |

| | | | | | |
|---|---|---|---|---|---|
| TC | Total WBC Count | Sug - R | Sugar Random | RM | Restricted Movements |
| DC | Differential Count | Chl | Cholestrol | KJ | Knee Joint |
| P | Polymorphs | Alb | Albumin | jt. | Joint |
| L | Leucocytes | Dep | Deposits | | |
| E | Eosinophils | | | | |
| ESR | Ertthrocyte Sedimentation Rate | | | | |

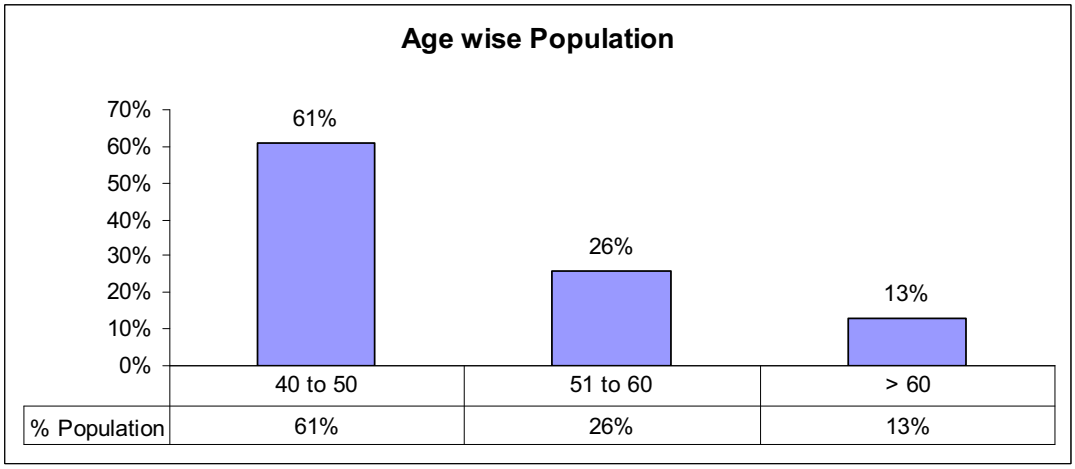
**Clinical assessment:**

The clinical study was subjected to 60 selected cases. 6 patients with drew from the treatment. The following parameters were observed during the course of treatment.

- Age
- Sex
- Socio – economic status
- Occupational status
- Clinical features

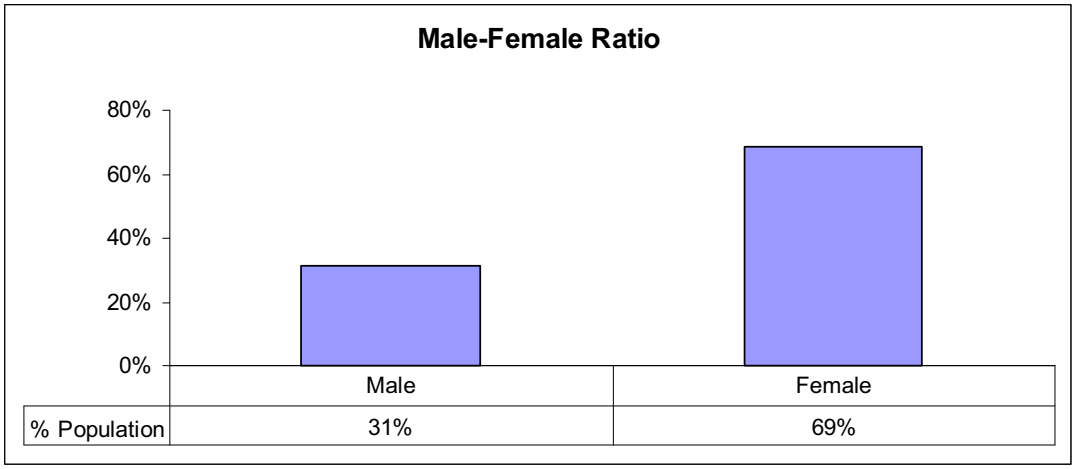
**Age:**

Amongst 54 patients, 33 belonged to 40 to 50 years group, 14 belonged to 51 to 60 years group and 7 were above 60 years. The percentage chart is as follows.



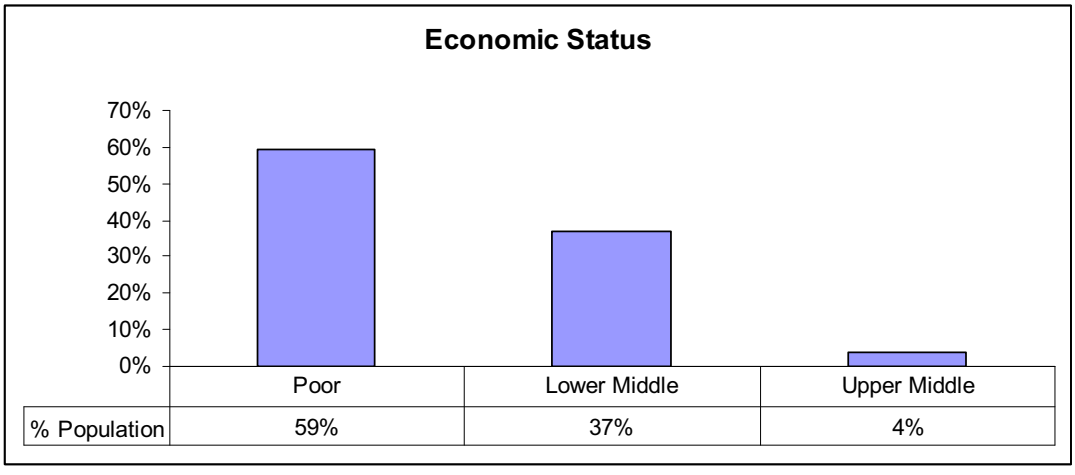
**Sex:**

Amongst 54 patients, 17 patients are males and 37 are females. The percentage ratio is as follows:



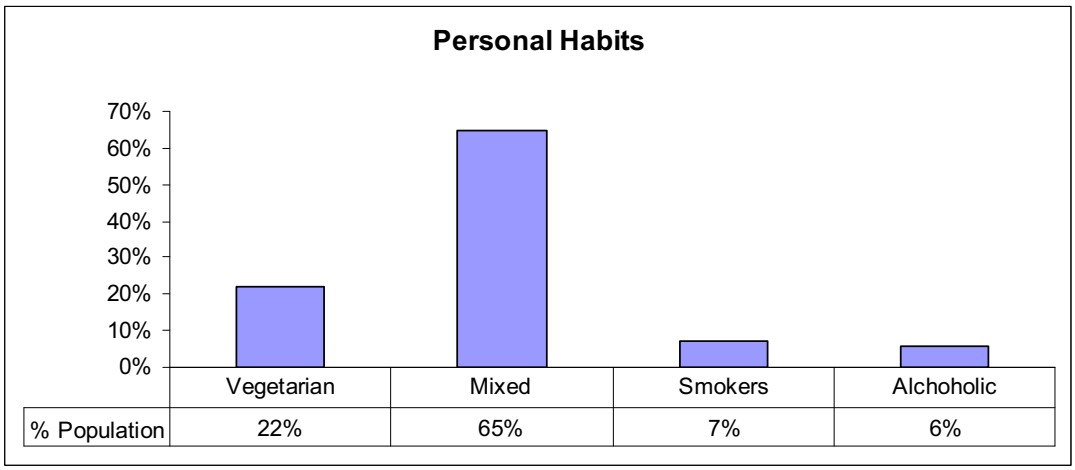

**Socio Economic Status:**

Amongst 54 patients, 32 patients were poor, 20 in Lower middle class and 2 in upper middle class. There were none in rich class. The percentage in the above classification is as follows.



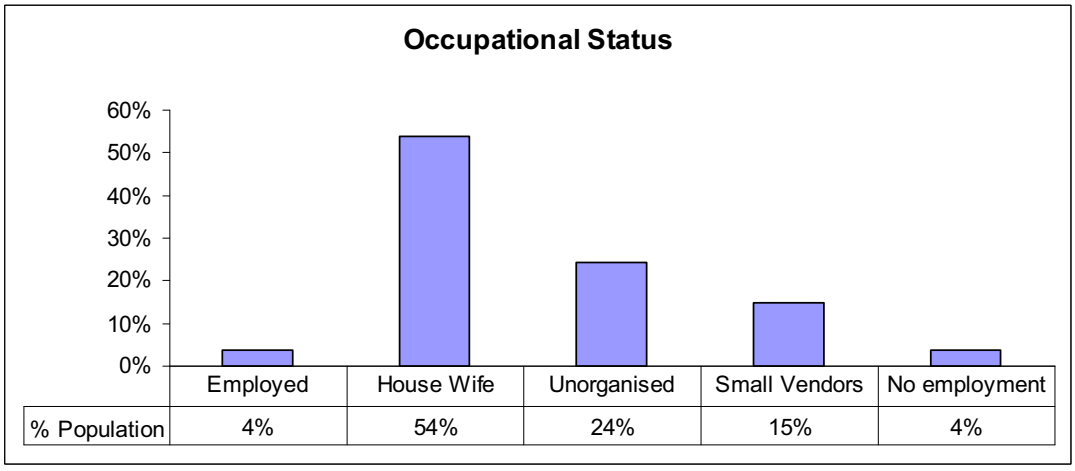
**Personal Habits and diet:**

Out of 54 patients 12 were vegetarians and 35 were mixed. 4 were smokers and 3 alcoholic. The percentage composition is as follows:



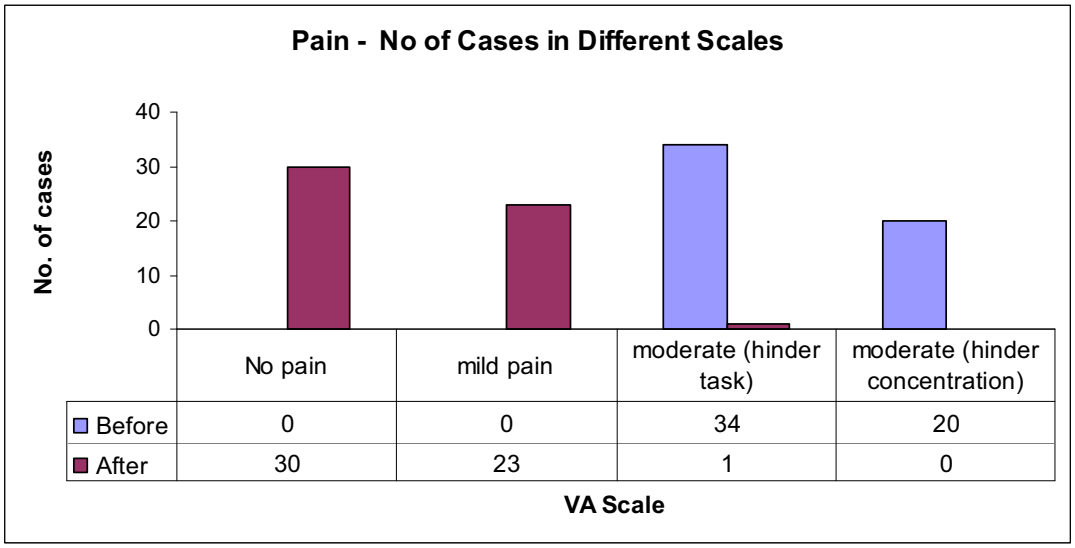

**Occupational Status:**

Out of 54 patients, 2 were employed in regular employment, 29 were house wives, 13 engaged in unorganized sector, 8 were small vendors and 2 were unemployed. The percentage composition is as follows:



**Improvement in Pain:**

The no. of patients reported moderate pain, which affects task as per VAS were 34 and who reported moderate pain hindering concentration were 20. After the treatment, 30 reported no pain and 23 mild pain. The results are as follows:




**Descriptive Statistics for Pain**

| | Mean | Standard Deviation | Standard Error of Mean |
|---|---|---|---|
| Pain before treatment | 4.74 | 0.97 | 0.13 |
| Pain after treatment | 0.52 | 0.72 | 0.001 |

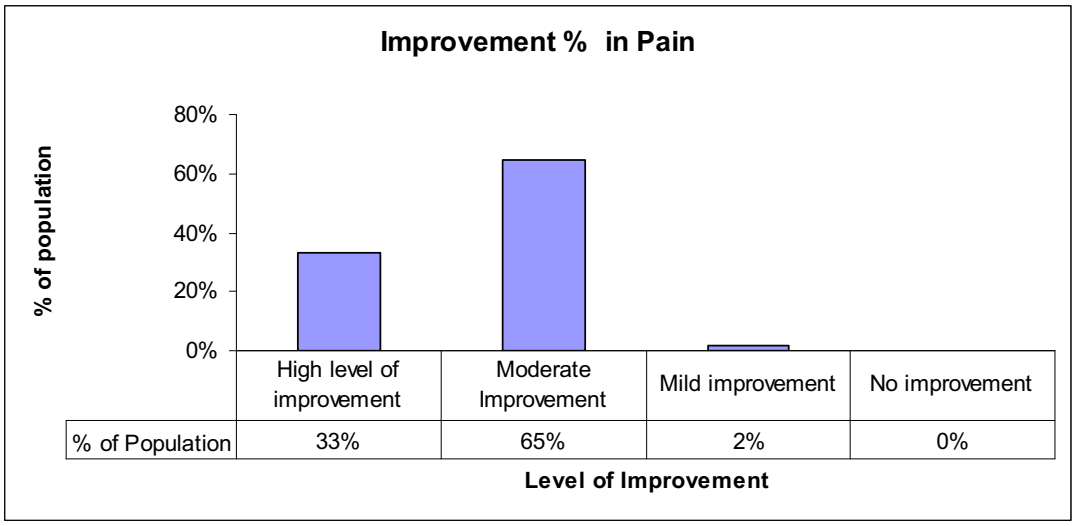
From the table we calculated the descriptive statistics like Mean, S.D., and S.E. of Mean for the pain score before and after treatment.

**T-Table**

| | Mean | Standard Dev. | S.E | t-value | p-value |
|---|---|---|---|---|---|
| Pre vs. Post | 4.22 | 1.02 | 0.14 | 30.37 | 0.000 |

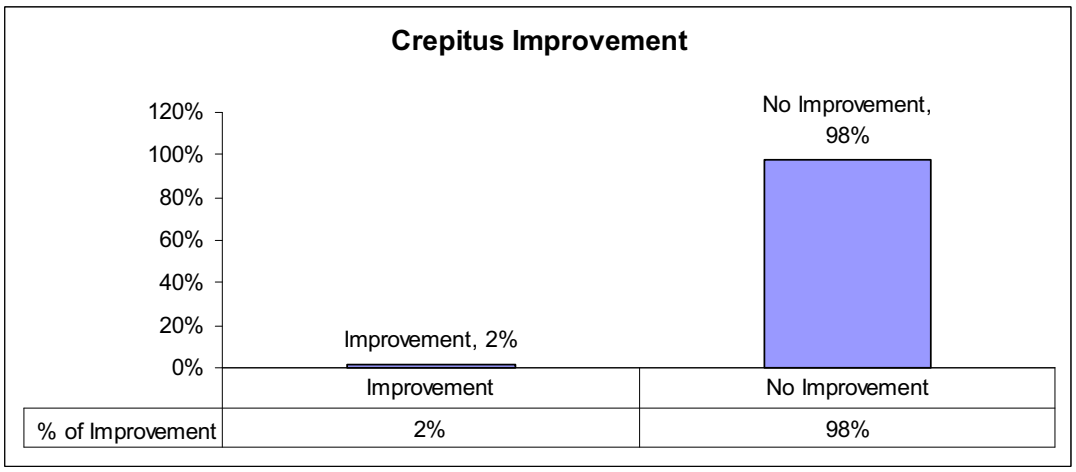
From the above table we got a significant difference ($p < 0.05$), so we conclude that there is an improvement between before and after treatment.

The percentage improvement in pain ranged from high level to moderate level.




**Improvement in Crepitus:**

One patient showed improvement where the others did not show any improvement. The percentage improvement is as follows:



**Improvement in Restricted Movement:**

36 patients showed major improvement and 4 patients showed moderate improvement. 10 patients showed only mild improvement and 4 patients did not show any improvement. The percentage composition is as follows:

**Descriptive Statistics for Restricted Movement**

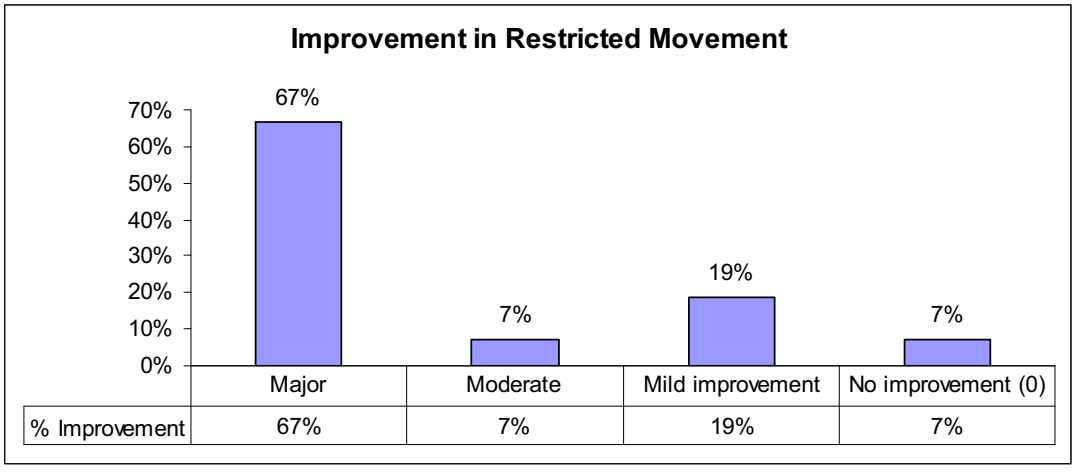
| | Mean | Standard Deviation | Standard Error of Mean |
|---|---|---|---|
| RM before treatment | 65.11 | 30.51 | 4.15 |
| RM after treatment | 119.56 | 10.61 | 1.44 |

From the table we calculated the descriptive statistics like Mean, S.D., and S.E. of Mean for the pain score before and after treatment.

**T-Table**

| | Mean | Standard Dev. | S.E | t-value | p-value |
|---|---|---|---|---|---|
| Pre vs. Post | 54.44 | 25.19 | 3.43 | 15.89 | 0.000 |

From the above table we got a significant difference ($p < 0.05$), so we conclude that there is an improvement between before and after treatment.



**Improvement in Swelling:**

For 19 patients the swelling reduced by more than 2 cm and for 13 patients the swelling reduce by 1 cm to 2 cm. 22 patients did not had any swelling. The percentage composition is as follows:

**Descriptive Statistics for Swelling**

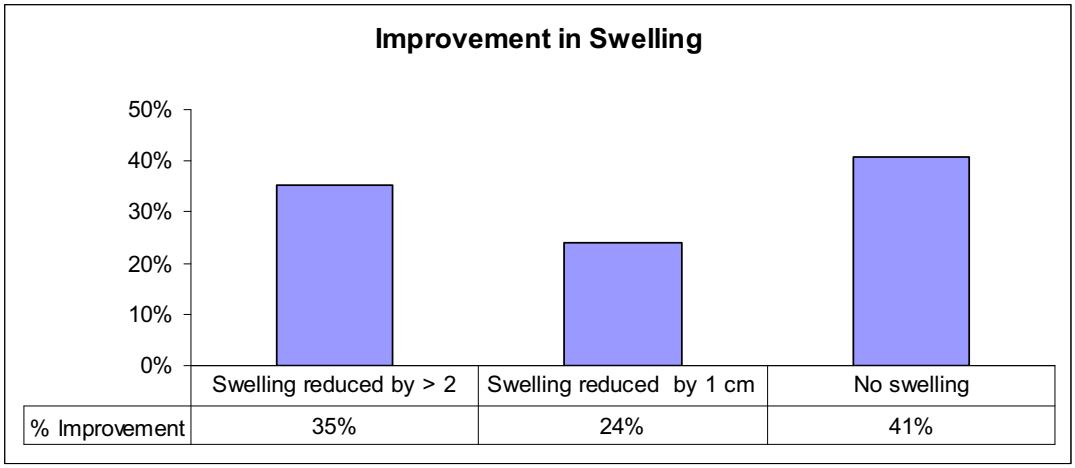
| | Mean | Standard Deviation | Standard Error of Mean |
|---|---|---|---|
| Swelling before treatment | 37.04 | 3.73 | 0.51 |
| Swelling after treatment | 35.84 | 3.93 | 0.54 |

From the table we calculated the descriptive statistics like Mean, S.D., and S.E. of Mean for the pain score before and after treatment.

**T-Table**

| | Mean | Standard Dev. | S.E | t-value | p-value |
|---|---|---|---|---|---|
| Pre vs. Post | 1.2 | 0.93 | 0.13 | 9.44 | 0.000 |

From the above table we got a significant difference ($p < 0.05$), so we conclude that there is an improvement between before and after treatment.



# Part - 1
# A Study on Kurosaniomam for Azhal Keelvayu

## Discussion

## 5. Discussion

***Hyoscyamus niger***. L is known as '**Kurosaniomam**' in Tamil is a reputed drug for **Vatha** diseases. It is **narcotic, sedative, anodyne**, antispasmodic, mydriatic and useful in many diseases. But in drug markets, different materials are sold as kurosaniomam.

The source drug was identified based on its macro and microscopic characters. Seeds are oval or kidney shaped brown with conspicuous characteristic reticulations. Odour tobacco like; taste acrid, bitter and oily.

Anatomically seeds showed important diagnostic structural features such as beak shaped radially elongated epidermal cells followed by tangentially extended cells, thin walled parenchymatous endosperm containing aleurone grains and oil globules.

Powdered drug was treated with different chemical reagents (Table – 1). Florescence Analysis (Table - 2) revealed different shades of green in UV (254nm) light except in raw form.

The preliminary phytochemical analysis showed the presence of oxalate, alkaloids, flavonoids, phytosterols, proteins, aminoacids, phenolic compounds and tannins.

The review of literatures showed that Kurosaniomam is a drug for VATHA DISEASES. AZHAL KEELVAYU is a more common degenerative disease. Going by the anodyne properties of Kurosaniomam, I felt that this can be clinically verified.

The presence of **flavonoids** having **anti-oxidant** property effectively mop up the oxidation.[27] Thus prevent the cartilage degeneration. Flavonoids also have **anti-inflammatory** action and helps in reducing inflammation.

The presence of albumin is helpful in binding the serum calcium,[31] which is essential for maintaining bone mineral density (BMD).

**Tannins** present in Kurosaniomam having astringent property **alleviate 'Pitha'** in Azhal Keelvayu.

**Terpenoids** present in Kurosaniomam exert **analgesic** and **antirheumatic** properties, [28] which are helpful in the treatment of Azhal Keelvayu.

The presence of **tropane alkaloids** hyoscine and hyoscyamine are very effective in the **pain management**. The **narcotic** property of hyoscine **lessens pain** and gives slight somnifacient action.[20] The sedative property of these alkaloids induces good sleep in patients.

The **acute toxicity** study of Kurosaniomam shows, toxicity produced at the dose of **1500 mg/kg.**

Kurosaniomam churanam shows **moderate anti-inflammatory** effect at the dosage of 150 mg/kg and 300 mg/kg at 120 mts in formalin induced animal models.

Analgesic effect lasted for a period of 2 hrs was found to posses **significant analgesic activity** ($P<0.001$) by Eddy's hot plate method.

Clinically Kurosanioma churanam was administered enterally at the dose of 300 mg, 2 times, with water for 60 patients. Out of which 6 patients withdrew from the treatment on various withdrawal criteria.

- The clinical study results show the female prepondenance of the disease. And obesity seen in more than 50% of the female population.
- Among 54 patients the pain reduced considerably. 33% had high level of improvement and 65% had moderate improvement.
- Among 54 patients swelling got reduced in all the patients who had swelling.
- Among 54 patients 67% had major improvement and 7% had moderate improvement in restricted movements.
- There was no improvement in crepitus.

- Statistical analysis also shows **significant p value** in pain, swelling and restricted movements.
- 2 patients had symptoms of vomiting, palpitation and warm feeling during the treatment. Immediately the dose was reduced to 150 mg bd and then they became comfortable. But the drug was not discontinued. It was also noted that the patients had good sleep during the period of treatment. Remission of pain was also noted in 10 patients after the completion of 6 weeks treatment. One patient did not show any improvement in all the four symptoms.

**'Karpu suvai'** helps in the **relaxation of joint stiffness** and **alleviates "Kapha"**[29] So Karpu suvai of Kurosanioma Churanam is useful in treating restricted movements and alleviates the aggravated 'Kapha' humour in Azhlal Keelvayu.

Kurosaniomam is classified under **Saturnine** substances. The seat of Saturn in our body is thigh and Saturn is responsible for dryness, spasm and restricted movement of the legs. So dryness caused by 'Pitha'; spasm and restricted movements caused by 'Vatha'[30] are treated effectively by this drug.

From the studies and discussion, it is evident that Kurosaniomam is an effective drug in the management of pain, swelling and restricted movement in Azhal Keelvayu**.** However the drug is to be used under proper care because of the narcotic properties.

# Part - 1
# A Study on Kurosaniomam for Azhal Keelvayu

## Summary and Conclusion

## 6. Summary and Conclusion

- Kurosaniomam (*Hyoscyamus niger*) is an ingredient in many Siddha preparations. This has a wide therapeutic use. However availability of genuine seeds is an issue.

- The sedative and hypnotic properties of Kurosaniomam help to manage pain in the chronic diseases like Azhlal Keelvayu.

- The acute toxicity of the trial drug is 1500 mg / kg in animal models.

- Pharmacological study shows Kurosaniomam has moderate anti-inflammatory and good analgesic activity.

- The clinical study clearly demonstrated that pain and swelling have been effectively controlled.

- This being a narcotic drug it needs to be administered under medical supervision.

# Part - 2
# A Study on Karpoora Mezhugu for Peenisam

## Introduction

## 1. Introduction

The word Siddha means established truth. The persons who were associated with Siddha school of thought were known as Siddhars. Siddhars are considered as living saints, who acquired supernatural powers. Siddhars were expert in alchemy. It is widely accepted even by Ayurveda experts that Siddha system of medicine contains thousands of herbo-mineral formulations which are not found in other Indian System of Medicine. Siddha Medicine is not a science of experimental myth or inductive generalization based on observations and experiments, it is a divine science evaluated by Siddhars by their Siddhis.

According to Siddha Principles the physical structures of the universe and man are basically made up of five elements and the physiological function of the body is mediated and maintained by three forces (Vatham, Pitham & Kapam). In normal physiological state they sustain and nourish the body. In diseased state when these three forces are vitiated they are called three faults (or) mukkutram. Due to our changing life style, food habits and polluted environment, these three forces are disturbed, causing diseases.

One of the commonest diseases due to industrialization and urbanization responsible for environmental pollution is **"Peenisam".** The symptoms of Peenisam are comparable with sinusitis and allergic rhinitis in modern medicine. Allergic rhinitis considered as the commonest allergic disease affecting more than 50% of people in India [33] and more than 120 million Indians suffer from atleast one episode of acute sinusitis each year. [34]

The classic symptoms of **Peenisam** are sneezing, running nose, nasal congestion and head ache. Running nose has a social impact as the sufferer has to use hand kerchief all the time. Due to repeated sneezing, nasal congestion and headache patient feels fatigue which affects the daily routine.

There are various medicines available in indigenous and modern medicine. The modern medicine prescribes anti-histamines for sneezing and analgesics for headache. The well known side effect of anti-histamines is sedation, analgesics is gastric

disturbances and anti-biotics is resistance to the drug when taken repeatedly. However it should be noted that these are not curative measures, but management measures only. Hence taking these medicines on a routine basis is not advisable.

In Siddha Medicine there are many preparations are available for **Peenisam. Karpoora Mezhugu** as a curative medicine for **Peenisam** is not found in these practises. Considering the properties of **Karpoora Mezhugu**, it was felt that this could be one of the effective medicines for **Peenisam**. Hence, I have selected the drug **Karpoora Mezhugu** for **Peenisam.**

# Part - 2
# A Study on Karpoora Mezhugu for Peenisam

## Aim & Objective

## Aim & Objective:

### Aim:

- To assess the efficacy of '**Karpoora Mezhugu'** in treating '**Peenisam**'.

### Objective:

- The objective of this study is to evaluate the therapeutic efficacy of Karpoora Mezhugu in treating Peenisam.

Karpoora Mezhugu was subjected to the following studies:

- Phytochemical Analysis
- Preliminary Bio-Chemical Analysis
- Antimicrobial Study
- Acute Toxicity Studies
- Anti-Inflammatory, Analgesic and Anti-Histaminic Activities
- Clinical Study

# Part - 2
# A Study on Karpoora Mezhugu for Peenisam

## Review of Literature
## Siddha Classical Reference

## சித்த மருத்துவ நோக்கு

### கற்பூரம்

**வேறு பெயர்கள்**

சுடர்கொடி, சூடன், தனிப்பண்ணை, மாடன், தீபக்கொடிச்சி, மாபக்த ரூபி, தீய்க் கஞ்சி, மாசற்ற சோதி, வேடன், ஆடன், ஆலாத்திக் கற்பூரம், ஆப்த கேசரி, அதீதம்[35].

பூரம், தீபம்[36]

சீனா, ஜப்பான், சுமத்ரா, போர்னியோ முதலிய இடங்களில் விளைகின்ற சின்னமோமம் காம்போரா என்ற ஒருவகை மரத்தின் வேர், அடிப்பாகம், கிளைகள் முதலியவற்றைத் துண்டுகளாக்கி நீருடன் சேர்த்து வாலையிலிட்டுத் தைலம் இறக்கிப் பிறகு பதங்கித்து, இப் பதங்கத்தை சுத்தி செய்வதற்காக மறுபடியும் சுண்ணாம்புடன் கலந்து, பதங்கித்துக் கொள்வார்கள்.

கற்பூரக் கட்டி வெண்ணிறத்துடன், நொய் போன்ற அணுக்களுடன் கூடியிருக்கும்; வாயிலிட்டுச் சுவைக்க முதலில் விறுவிறுப்புள்ளதாயும், பின்பு குளிர்ச்சியாயும், வாசனை பொருந்தியதாயுமிருக்கும். நீரில் மிதக்கும். இதைக் கொளுத்தச் சுடர் விட்டெரிந்து ஆகாயத்தில் பரிணமித்துவிடும். மூடி எரிக்கப் பதங்கிக்கும், காற்றில் கரையும்; இலேசாகப் பொடிபடும்; நீரில் கரையாது, எண்ணெய், சாராயம், பிசின் இவைகளில் கரையும். இதைப் பிசின் சர்க்கரை, சிற்றண்டத்தின் வெண்கரு இவைகளிலொன்றுடன் கூட்டி, நீர் விட்டரைத்து நீருடன் கலக்கும்படி செய்யலாம்.

**குணம்**

சூடம் உப்புச் சரக்கு[8]

சூடம் விந்து அல்லது ஆண் சரக்கு[30]

மூலிகைகளில் கருங்கரிசாலையும், கல் தாமரையும் கற்பூரத்திற்கு சமமாகக் கூறப்பட்டுள்ளன[37]

பஞ்சவாசப் பொருட்களுள் ஒன்று

**நட்பு சரக்குகள்**

சூதம், துருசு.

**பகை சரக்குகள்**

அயம், வெடியுப்பு, கல்லுப்பு.

**சுவை:**

விறுவிறுப்புடன் கூடிய கைப்பும், கார்ப்பும்

**வீரியம்:**

வெப்பம்

**விபாகம்**

கார்ப்பு

**செய்கைகள்:**

**வெப்பமுண்டாக்கி**, சமனகாரி, **வேதனா சாந்தினி**, அழுகலகற்றி, இசிவகற்றி, கோழையகற்றி, தூக்கமுண்டாக்கி, அகட்டு வாய்வகற்றி, தாது பெருக்கி

**பொது குணம்**

**"கிருமிசல தோடங் கிளைவலிப்பு சந்நி**
**பொருமுமந்தம் அங்கிபட்ட புண்ணோ – டெரிசுரங்கள்**
**வாந்திபித்தஞ் சீதமுறு வாதஞ் செவிமுகநோய்**
**காந்திகருப் பூரமொன்றாற் சாற்று"**

கர்ப்பூரத்தினால் கிருமி, **சலதோஷம்,** இசிவு, சந்நிபாதம், வாதஅலசம், தீச்சுட்டபுண், கோரசுரம், வாந்தி, பித்தம், கபவாதம், காதையும், **முகத்தையும் பற்றிய** பிணிகள் நீங்கும்.

**கற்பூரம் வைப்பு:**[38]

**தானென்ற சூடனுட வைப்பு கேளு**

**தனித்துநின்ற வாழையுட கிழங்கு தண்ணீர்**

**தோன்றபடி பத்து அளந்து கொண்டு**

**சிறப்பான செம்பினுட பாண்டத்தில் விட்டு**

**வேனென்ற வெடியுப்பு நாற்பது பலந்தான்**

**வெருளாதே பொடி பண்ணி கூடப் போட்டு**

**மானென்ற அடுப்பேற்றி யெரி நேரப்படி**

**வத்தியெல்லாம் குளம்பு போல் வருகும்பாரே**

**வருதல் கண்டு கருவாயின் பட்டை தன்னை**

**வகையாகத் தூள் பண்ணித் தயிலம் வாங்கி**

**திருதல் கண்டுபடி தானுங் கூடவிட்டுச்**

**சிறப்பான புட்டான பதத்தில் காச்சி**

**கருதல் கண்டுளிறக்கியே யாற விட்டு**

**கசக்காமலுவி கொண்டு வெட்டி வாங்கி**

**அருதல் கண்டு பானை தன்னி லடைத்துப் போடு**

**ஆச்சரியச் சூடனென்ற பேருமாச்சே''**

**பொருள்:**[39]

வாழைக்கட்டை சலத்தில் தச தீட்சை செய்த 30 பலம் வெடியுப்புடன் பனிசலத்தில் தசதீட்சை செய்த பூநீறு சமன் கூட்டி, அடி கனத்த சட்டியில் போட்டு உப்பின் எடைக்கு 4 மடங்கு வாழைக்கிழங்குச் சாறு அல்லது பனிசலம் விட்டுக் கலக்கி அசையாமல் 3 நாள் வைத்து, 4வது நாள் தெளிந்துள்ள நீரை வடித்துக் குழம்பு பதத்தில் காய்ச்சிப் பீங்கான் தட்டுகளில் விட்டு வெயிலில் வைக்க உப்பாகும். இதனைப் பொடி செய்து, பூப்புடத் தைலமாகச் சித்தப்படுத்திய இலவங்கப்பட்டை தைலத்தைக் கொஞ்சம் கொஞ்சமாக விட்டுப் பிசரிக் கையால் பிடித்த அளவில் உதிராத பதத்தில் ஒரு ஜாடியில் போட்டு வாய்மூடி, சீலை செய்து, பூமியில் 15 நாள் புதைத்து, 16ம் நாள் ஒரு கூடை

உலர்ந்த குதிரை லத்தியை அதன் மேலே கொட்டித் தீயிடவும். 2ம் நாள் ஆறவிட்டுப் பின்னர், புதைத்து வைத்துள்ள ஜாடியை எடுத்து மூடியை நீக்கிப் பார்க்க உப்பு கட்டியாக இருக்கும்.

**சுத்தி முறைகள்:**

- கற்பூரத்தை செங்கழுநீர்ப் பூச்சாற்றில் ஒரு நாழிகை ஊற வைத்தெடுத்து வெயிலில் உலர்த்தி எடுக்க சுத்தி ஆகும். சரக்கைப் பார்த்து மண், தூசு முதலிய மலினங்களில்லாமல் சுத்தம் செய்துகொள்ள வேண்டும்.[36]

- ஒரு பீங்கானின் வாயைப் பட்டுத் துணியால் கட்டி, அதன் மேல் ஈரக்கற்பூரம் பொடித்துப்போட்டு, அதன் மேல் ஒரு தாம்பிரத் தட்டில் நெருப்பைப் போட்டு வைத்து புகையை வெளிப் போகாமல் செய்ய கற்பூரம் உருகி பீங்கானில் விழும். இவ்விதமாகவே 2 தடவை செய்ய சுத்தியாகும்.

- தூய்மை செய்யப்பட்டு ஆங்கில மருந்துக் கடைகளில் வில்லைகளாக விற்கப்படுவதை வாங்கி மருந்துகளில் சேர்த்துக் கொள்ளலாம். சுத்தி செய்யத் தேவையில்லை.[41]

**சூடன் கட்டு:**[37]

**"கட்டிய உப்பையும் கண்டர் வெளுப்பையும்**
**ஒட்டிச் சமனாய் உருவரை வில்லைதான்**
**தட்டிய சூடனில் தட்டி அனல் வாட்ட**
**முட்டிய சூடன் முழுக்கட்டாம் பாருமே"**

கட்டிய கல்லுப்பு, வெள்ளைக் கண்டர் சமனாக சேர்த்து அரைத்து சூடன் மேல் கவசமிட்டு, நெருப்பில் வாட்ட, சூடன் முழுக்கட்டாகும்.

**மருத்துவ பயன்கள்:**

- **சலதோஷ நிவாரணிகளில்** கற்பூரமும் ஒன்றாகக் கூறப்பட்டுள்ளது[8]

- கற்பூரத்தையும், சீரகத்தையும் பொடித்துப் பொட்டணம் கட்டி முகர, **நீரேற்றம்** இறங்கும். இதனை,

**"இந்தரி குடாரி யிரிக்குஞ் சிற்பரம்"**

என்ற தேரன் கரிசலடியால் அறியலாம்.

- இதை முகர்ந்தால் **சலதோஷம்** தீரும். வெந்நீர் ஆவியை உட்கொண்டால் கபரோகத்தை உடனே சாந்தமாக்கும்.[36]

**கற்பூர நஞ்சு முறிவு**[40]

கற்பூரத்தை உண்டவர்க்கு மஞ்சளையரைத்து தண்ணீரில் கலக்கிப் புகட்டவும் அல்லது பாதிரி வேரை அரைத்து தேனிற் குழைத்து புகட்டவும்.

**கற்பூரம் சேரும் மருந்துகள்**

1. **வீரமெழுகு**[11]

வீரம், இரசம், பூரம், இலிங்கம் வகைக்கு 17.5 கி வெடியுப்பு, கற்பூரம், பொரித்த வெங்காரம், நவாச்சாரம் வகைக்கு 35 கி, சுத்தித்த நேர்வாளம் - 245 கி கூட்டித் தேன்விட்டு மெழுகு பதத்திலரைத்துப் பத்திரப்படுத்தவும்.

அளவு : 65 மிகி

அனுபானம் : பனைவெல்லம்

தீரும் நோய்கள்: 4, 5 தடவை பேதியாகும். வாத, பித்த, கபப் பிணிகள் தீரும்.

2. **கோரோசனைக் குளிகை**[12, 13]

கோரோசனை, குங்குமப்பூ, கற்பூரம், இரசசெந்தூரம், பச்சைக் கற்பூரம், ஏலம், அப்பிரகம், கிராம்பு, கோஷ்டம், சாதிக்காய், அக்ரகாரம் வகைக்கு 15.3 கி எடுத்துக் கல்வத்திலிட்டுப் பொடித்து, சந்தனத்தூள் கியாழத்தில் 12 மணி நேரமும், சண்பகப்பூ கியாழத்தில் 6 மணி நேரமும், குங்குமப்பூ கியாழத்தில் 6 மணி நேரமும் அரைத்து, 135 மி கி அளவு மாத்திரை செய்து நிழலிலுலர்த்தவும்.

அளவு : 1 மாத்திரை

அனுபானம் : முலைப்பால்

தீரம நோய்கள் : **சலதோடம்**, மண்டைக்குத்து, சேத்துமம் - 96.

### 3. வேங்கை வில்வாதித் தைலம்

இத்தைலத்தை தேய்த்து தலைமுழுகி வர **பீனிசம்**, தடுமன், செவியடைப்பு, காய்ச்சல் தீரும்.

### 4. சிரோரத்தின மாத்திரை[43]

வேண்டும்போது ஒரு மாத்திரையை முலைப்பாலில் இழைத்து, நெற்றி, பொறி, கன்னம் முதலிய இடங்களில் பூசி வரச் சீதளநீரை வற்றச் செய்து, தலைவலி, தலைபாரம் முதலியவற்றை குணப்படுத்தும்.

### 5. வான்மெழுகு

சுத்தித்த இரசம், இரசசெந்தூரம், கந்தகம், வீரம், கௌரி, வெள்ளைப்பாடாணம், மிருதார்சிங்கி, பூரம், இலிங்கம், அபின், காந்தம், சாம்பிராணி, கற்பூரம், தாளகம் சமனெடை எடுத்து, தனித்தனியாகப் பொடித்து வரிசைப்படி ஒவ்வொன்றாக கூட்டியரைத்து, அண்டத்தைலத்தால் மெழுகுபோல் 12 மணி நேரம் நன்கு அரைத்து எடுக்கவும்.

அளவு : 100 - 200 மி.கி. 2 வேளை, 3 முதல் 5 நாட்கள்

அனுபானம் : பனைவெல்லம்

தீரும் நோய்கள் : எண் வகைச்சுரம், காசம், **கபம்,** கபவாத சன்னி முதலிய கப நோய்கள்

### 6. தாளகக் கருப்பு

சுத்தித்த தாளகம் - 400 கி, கௌரிபாஷாணம், கற்பூரம், வெங்காரம், நேர்வாள ஓடு. வகைக்கு 200 கி, சுத்தித்த வீரம் 100 கி, தேன் 250 கி எடுத்து, சரக்குகளைத் தனித்தனியே கல்வத்திலிட்டு அரைத்துப் பின் ஒன்றுகூட்டி, தேன்விட்டு மெழுகுபோல் அரைத்து வந்த மருந்தைக் கவசித்து, சீலை செய்து, காய வைத்து, மணல் மறைவு புடமிட்டு, மருந்தை எடுத்து அரைத்து வைக்கவும்.

அளவு : 200 - 400 மி.கி, 2 - 3 வேளைகள்

அனுபானம் : தேன்

தீரும் நோய்கள் : **கபநோய்கள்**

## மாதுளை வேர்பட்டை

**வேறு பெயர்கள்**[6]

தாடிமம்

பீசபுரம்

மாதுளங்கம்

மாதுளம்

மாதுளுங்கம்

**பயன்படும் உறுப்பு**

பூ, பிஞ்சு, பழம், விதை, பட்டை, வேர்

**குணம் (பட்டை)**

சுவை - துவர்ப்பு

தன்மை - தட்பம்

பிரிவு - கார்ப்பு

**செய்கை**

புழுக்கொல்லி

**மருத்துவப் பயன்கள்**

- வேர்பட்டை குடிநீரை குழந்தைகளுக்குண்டாகும் இருமல் நோய், கண்நோய், பெரியவர்கட்குண்டாகும் நாட்பட்ட சுரம், முறைசுரம், மண்ணீரல் தாபிதம், இவைகளாலுண்டாகும் குருதியழல் நோய் முதலியனவைகளுக்கு கொடுக்கலாம்.

- வேர்பட்டைச் சாறு, குடிநீர் இவைகைள உள்ளுக்கு கொடுக்க, தட்டைப்புழு, மற்ற வயிற்றுப் புழுக்கள் வெளியாகும்.

- மாதுளை வேர், பிஞ்சு இவைகளினால் வாந்தி, அதிசாரம் நீங்கும். தாது விருத்தியுண்டாகும். இதனை,

**"மாதுளைவேர் பிஞ்சிவைக்கு வாந்தியதி சாரம் போம்**

**தாதுவுமாம்"**

என்னும் பாடலால் அறியலாம்.

**மாதுளை வேர் சேரும் மருந்துகள்**

1. **மாதுளங் குடிநீர்**

"மாதுளங் கடம்பு புன்கின் வாய்த்தவேர் திப்பிலியத்தித்

தீதறுங் கொழுந்து சுக்கு திரிபலைவி ரும்பிக் கூட்டி

நீதியாயிரண்டு நாழி நீருழக்காக்கிக் கொண்டால்

சூதிணை முலையி னாளே சுரமதிசாரம் போமே"

மாதுளம், கடம்பு, புங்கு இவற்றின் வேர்கள், திப்பிலி, அத்திக்கொழுந்து, சுக்கு, திரிபலை ஓரெடை எடுத்து 4 லி நீர்விட்டு, அதை 1 லிட்டராகச் சுண்டவைத்து, அருந்த சுரக்கழிச்சல் தீரும்.

2. மாதுளை நெய்[11]

3. மகாஏலாதி சூரணம்[43]

4. இங்குவாதி சூரணம்

## வால்மிளகு

**வேறு பெயர்கள்:**[44]

**''அருளினோம் ரேணுக மென்றும் பேரு**

**அத்துராதி வட்ட மென்றிதற்குப் பேரு**

**அருளினோம் அலங்காரமென்றுப் பேரு**

**அசோரித மென்றிதற்குப் பேருண்பாச்சு**

**மருளினோம் தூலாதி என்றும் பேரு**

**மகத்தான தக்கோல மென்றிதற்குப் பேரு**

**அருளினோம் சதுட்டமெ ன்றிதற்குப் பேரு**

**சமத்தாகச் சொல்லிவிட்டோம் வால்மிளகின் பேரே''**

ரேணுகம், அத்துராதிவட்டம், அலங்காரம், அசோரிதம், தூலாதி, தக்கோலம், சதுட்டம்

**பயன்படும் உறுப்பு**[6]

(உலர்ந்த) முதிராத காய்

சுவை : கார்ப்பு, விறுவிறுப்பு

தன்மை : வெப்பம்

பிரிவு : கார்ப்பு

**செய்கை**

**வெப்பமுண்டாக்கி**

அகட்டுவாய்வகற்றி

சிறுநீர்ப் பெருக்கி

கோழையகற்றி

**பொது குணம்**

**"வாதபித்த ஐயம் வயிற்று வலிதாகஞ்**

**சீதம் பலநோய் சிதையுங் காண் - போத**

**அதிதீ பனமாம் அணங்கரசே! நாளுந்**

**துதிவால் மிளகருந்தச் சொல்"**

இதனால் வளி, தீ, **ஐயக்குற்றங்களும்,** குன்மம், நீர்வேட்கை, வெள்ளை முதலிய நோய்கள் போகும். பசி உண்டாகும்.

**மருத்துவப் பயன்கள்**

- வால்மிளகுத்தூள் 250 மி.கி., கருவாப்பட்டைக் குடிநீர் 42 மிலி., இரண்டையும் கலந்து தினமும் 3 வேளை கொடுத்துவர, இருமல், சளி நீங்கும்.

- 250 மிகி வால்மிளகுப் பொடியை பாலில் கலந்து குடிக்க, தொண்டைக் கம்மல் நீங்கிக் குரல் தெளியும்.

- வால்மிளகு, திப்பிலி, அதிமதுரம், சிற்றரத்தை, கடுக்காய் இவைகளின் தூள் ஓரெடை எடுத்து, அதற்கு 15 மடங்கு நீர் விட்டுக் காய்ச்சி, 1/4 ஆகக் குறுக்கி, வேளைக்கு 30 - 60 மிலி தினம் நாலுவேளை கொடுத்து வர, இருமல் நீங்கும்.

- வால்மிளகைப் பன்னீரில் அரைத்துத் தலைவலிக்குப் போடலாம்.

- வால்மிளகு எண்ணெய் 136 கி, வெள்ளை குங்கிலியம் 136 கி பறங்கிச் சக்கைத்தூள் 139 கி கூட்டி, நீர்முள்ளிச்சாறு விட்டு அரைத்துச் சுண்டை அளவு உருட்டி, வேளைக்கு 2 - 3 மாத்திரை காலை மாலை கொடுக்க, நீர்க்கடுப்பு, நீரடைப்பு வெள்ளை போகும்.

**வால்மிளகு சேரும் பீனிசத்திற்கான மருந்துகள்**

1. **தும்மல் கியாழம்**[45]

சிறுதேக்கு, வாய்விளங்கம், வால்மிளகு, ரோகிணி, சுக்கு, ஏலம், திப்பிலி, இலவங்கம், தான்றி, தக்கோலம் வகைக்கு 10 கி எடுத்து, 2½ லி சலம் விட்டு 1/8 ஆக காய்ச்சி இறக்கவும்.

தீரும் நோய்கள் : **சலதோடம், தும்மல், பீனிசம்**

2. மகாஏலாதி சூரணம்[43]

3. சுவாசகுடோரி சூரணம்

4. தாளிசபத்திரி சூரணம்

5. திப்பிலி சூரணம்

6. பச்சைக் கற்பூர மாத்திரை

7. குங்குமப்பூ மாத்திரை

8. கண்டாவிழ்தம்

9. சுத்த வல்லாதி எண்ணெய்

10. கஸ்தூரி மெழுகு[46]

11. இராஜகேசரிச் சூரணம்

12. மகரத்வஜ மாத்திரை

## கிராம்பு

**வேறு பெயர்கள்**[6]

அஞ்சுகம், உற்கடம், கருவாய், இலவங்கப்பூ, சோசம், திரளி, வராங்கம்

**"காருக்கு முன்பு கடலடி புஷ்பம்**

**வாருற்ற சின்னி மருவும் பரங்கிச்சி**

**நேருற்ற வன்னி நேர்தாகச் சாந்தியாம்**

**தாருற்ற கிராம்புக்குச் சாற்றிய நாமமே"**[48]

கடலடிபுஷ்பம், சின்னி, பரங்கிச்சி, வன்னி, தாகசாந்தி.

சுவை - கார்ப்பு, விறுவிறுப்பு

தன்மை - வெப்பம்

பிரிவு - கார்ப்பு

**செய்கை**

இசிவகற்றி, அகட்டு வாய்வகற்றி, பசித்தீத்தூண்டி

**பொதுகுணம்**

**"பித்தமயக்கம் பேதியோடு வாந்தியும்போம்**

**சுத்தவிரத் தக்கடுப்புந் தோன்றுமோ - மெத்த**

**இலவங்கங் கொண்டவருக் கேற்சுகமாகும்**

**மலமங்கே கட்டுமென வாழ்த்து"**

கிராம்பினால் பித்த மயக்கம், பேதி, வாந்தி, இரத்தக் கழிச்சல், எருவாய் கடுப்பு நீங்கும்.

**மருத்துவப்பயன்கள்**

- கிராம்பை நீர்விட்டு மை போலரைத்து, நெற்றியிலும், மூக்குத்தண்டின் மீதும் பற்றிட**, தலைபாரம், நீரேற்றம்** குணமாகும்.

- கிராம்பும், நிலவேம்பும் சமமெடுத்துக் குடிநீர் செய்து கொடுக்க பசி உண்டாகும். அயர்ச்சி நீங்கும். சுரத்திற்குப் பின் உண்டாகும் களைப்பைப் போக்கும்.

**கிராம்பு சேரும் பிணிசத்திற்கான மருந்துகள்**

1. அறுவகைச் சூரணம்[10]
2. கோரோசனை மாத்திரை[13]
3. பச்சை கற்பூர மாத்திரை
4. வசந்த குசு மாகரம்
5. திப்பிலி இரசாயனம்
6. இலிங்காதி சுகக்கழிச்சல் குளிகை[49]
7. சுவாச உருண்டை[41]
8. கஸ்தூரி மாத்திரை[50]
9. முயல்நெய்[11]
10. கஸ்தூரி மெழுகு

## எலுமிச்சை

**வேறு பெயர்கள்**[44]

தேசிநீர், கூதழச்சாறு, சிறுகிளி பழச்சாறு, நிம்பவளச்சாறு, நோவாலி மாதரசி, உபனோரஞ்சகம், பித்தமுறிமாதம், பேசுங்கனிமாதர், சம்பீரம்.

**பயன்படும் உறுப்பு**[6]

இலை, காய், பழம், பழரசம், எண்ணெய்

சுவை - புளிப்பு

தன்மை - வெப்பம்

பிரிவு - கார்ப்பு

**செய்கை**

குளிர்ச்சியுண்டாக்கி

**பொதுகுணம்**

**"தாகம் குநகநோய் தாழாச் சிலிபதநோய்**
**வேகங்கொள் உன்மாதம் வீறுபித்தம் – மாகண்ணோய்**
**கன்னனோய் வாந்தியும்போங் கட்டுவா தித்தொழிலில்**
**மன்னெலுமிச் சங்கனியை வாழ்த்து"**

தாகம், நகத்தைப்பற்றிய நோய், யானைக்கால், வெறிநோய், பித்தநோய்கள், கண்ணோய், கன்னநோய், வாந்தி முதலிய நோய்கள் எலுமிச்சங்கனியால் போகும்.

**மருத்துவப் பயன்கள்**

- சுர வாந்திக்கும், வாய்க்குமட்டலுக்கும் பழரசத்தினால் செய்யப்படும் சாதிசம்பீரக் குழம்பு நற்பயனைத் தரும்.
- எலுமிச்சம்பழத்தை கற்பமுறையாய் உண்ண, நரைதிரை மாறும்.
- உட்கொள்ளும் மருந்துகளின் உஷ்ணத்தைக் குறைக்கும்.

- பழச்சாற்றை எந்த மருந்துடன் உட்கொண்டாலும் அதன் வீரியத்தை அதிகப்படுத்தும்.
- மருந்துகளுக்கு அனுபானமாகவும், நஞ்சுமுறிவிற்கும் பயன்படும்.
- மருந்து சரக்குகளின் சுத்திக்கும், பற்ப, செந்தூர, கட்டுகள் செய்யவும் பயன்படுகிறது.
- நவலோக மாரணத்திற்கும் பயன்படுகிறது[8]

**எலுமிச்சை சாறு சேரும் பீனிசத்திற்கான மருந்துகள்**

1. நீர்க்கோவை மாத்திரை[13]
2. பாகற் கடுக்காய்
3. பீனிச சுகந்த தைலம்[51]
4. சம்பீரத் தைலம்[52]
5. இலவங்காதி மாத்திரை[12]
6. மண்டூரச் செந்தூரம்
7. சுத்தவல்லாதி எண்ணெய்[8]
8. அப்பிரகச் செந்தூரம்[8]

## கரும்பு வெல்லம்

கரும்பின் சாற்றைக் காய்ச்சி வெல்லம் எடுக்கப்படுகிறது

சுவை : இனிப்பு

தன்மை : சீதம்

பிரிவு : இனிப்பு

**செய்கை**

அழுகலகற்றி

உள்ளழலாற்றி

**பொதுகுணம்**

**"அருந்து மருந்திற் கனுபான மாகப்**

**பொருந்துமடல் வாந்திபித்தம் போகும் - அருந்தருசி**

**நீக்கு மதிகபத்தை நீற்றுமகிழ்ச் சியுண்**

**டாக்கு நறுஞ்சர்க்க ரை"**

மருந்துகளுக்கு அனுபானமாகவுள்ளது. வாந்தி, பித்தம், சுவையின்மை போக்கும். கெட்டிப்பட்ட கபத்தை இளக்கி மகிழ்ச்சியைத் தரும்.

**மருத்துவப் பயன்கள்**

- பாகு செய்து உணவுப்பொருட்களை கெடாமல் சேமித்து வைப்பதற்கும், சலதோஷம், நீர்ப்பீனிச நோய் இவைகளைப் போக்குவதற்கும் கொடுக்கலாம்.
- செம்பு, வெள்ளைப்பாடாணம், வீரம் முதலிய நச்சுப் பொருட்களை உண்பதினாலுண்டாகும் கேட்டிற்கு, நஞ்சு முறிவாகக் கொள்ளலாம்.

**வெல்லம் சேரும் பீனிசத்திற்கான மருந்துகள்**

1. அமுக்கராச் சூரணம்[12]
2. தாளிசாதி சூரணம்
3. சரபுங்க வில்வாதி லேகியம்
4. திப்பிலி இரசாயனம்
5. தாளிசாதி வடகம்[13]
6. நந்தி மை
7. குங்குமப்பூ நெய்[50]

# Part - 2
# A Study on Karpoora Mezhugu for Peenisam

## Review of Literature
## Camphor Chemical Aspects

## 3.2 Camphor Chemical Aspects [54]

**Synonyms**

- 1,7,7-Trimethyl Bicyclo (2,2,1)-Heptan-2-One
- 2-Bornanone
- 2-Camphanone
- 2-Keto-1,7, 7-Trimethylnorcamphane
- 2-Oxo-Bornane
- Alcanfor
- Camfora
- Camphor-Natural
- Camphor-Synthetic
- Formasa-Camphor
- Gum Camphor
- Japan Camphor
- L,7,7-Trimethyl norcamphor
- Laurel Camphor
- Matricaria Camphor
- Root Bark Oil
- Spirit Of Camphor
- Tramfer

## Physico-Chemical Properties

### Origin of the substance

Camphor may be natural or synthetic. It occurs naturally in the wood of the camphor tree (*Cinnamomum camphora*), and is extracted by steam distillation and crystallization. Natural camphor is dextrorotatory. Synthetic camphor may be made from pinene which is converted into camphene by treatment with acetic acid and nitrobenzene. Synthetic camphor is optically inactive.

### Chemical structure

$C_{10}H_{16}O$
Molecular Weight = 152.2

$CH_3$
= O
$H_3C$-C-$CH_3$

### Physical properties

Properties of the substance

- Normal state at room temperature: solid, translucent crystals.
- Colour: white crystals.
- Odour: penetrating, aromatic.
- Boiling point: 204 °C
- Melting point: 176 to 180 °C
- Sublimes appreciably at room temperature and normal atmospheric pressure
- Flash point: 65°C
- Autoignition temperature: 466°C
- Relative density: 0.99 (specific gravity)
- Relative vapour density: 5.2
- Vapour pressure: 20 PA at 20°C
- Solubility in water: 0.125 g/100 m1 (25 °C)
- Soluble in ethanol, ethylether, turpentine, and essential oils
- Relative molecular mass: 152.2.

### Storage conditions

Store in airtight containers at a temperature not above 25°C.

## Kinetics

### Absorption by route of exposure

Camphor is readily and rapidly absorbed from the skin, and gastrointestinal and respiratory tracts. Camphor in oil solutions is absorbed slowly from subcutaneous or intramuscular depots.

### Distribution by route of exposure

After oral ingestion, peak blood levels are reached in 5 to 90 min. The high lipid solubility of camphor suggests that it accumulates in adipose and other tissues. Camphor crosses the placenta (Kresel, 1982), and has a large volume of distribution.

### Metabolism

Camphor is rapidly oxidized to campherols (2-hydroxycamphor and 3-hydroxycamphor), and then conjugated in the liver to the glucuronide form (Kresel, 1982). Camphor-related metabolites are relatively fat-soluble and may accumulate in fatty tissue.

### Elimination by route of exposure

Campherol conjugated to glucuronic acid is eliminated mainly in the urine as an inactive compound (Kresel, 1982). Trace amounts are eliminated by the lungs.

### Interactions

Oils, alcohols, and fats promote gastrointestinal absorption. Although vaseline oil has been used for gastric decontamination, its use is controversial.

## Pharmacology and Toxicology

### Pharmacodynamics

- Camphor is used exclusively because of its local effects. When rubbed on the skin, it acts as a rubefacient and causes localized vasodilatation, which gives a feeling of comfort and warmth.
- As an anti-pruritic agent, when applied gently on the skin, it may create a feeling of coolness, and a mild, local anaesthetic effect, which may be followed by numbness.
- When ingested in small amounts, it creates a feeling of warmth and comfort in the stomach, but given in large doses it acts as an irritant (Goodman et al 1985).

### Toxicodynamics

- Camphor is a CNS stimulant whose effects range from mild excitation to grand-mal convulsions or status epilepticus. These effects result from excitation of the cerebrum and lower structures of the CNS. Gastric irritation, together with cortical and medullary stimulation, frequently causes vomiting and diarrhoea.
- Other symptoms are: Headache, confusion, vertigo, excitement, restlessness, delirium, and hallucinations; increased muscular excitability, tremors, and jerky movements; epileptiform convulsions followed by depression; convulsions sometimes occur early in cases of poisoning and may be severe; coma; CNS depression may at times be the primary clinical response.
- Mydriasis and impairment of vision have been reported.
- Death results from respiratory failure or from status epilepticus.

**Toxicity**

**Human data**

- Adults: The probable oral lethal dose is 50 to 500 mg/kg. A dose of 2 g generally causes toxic effects in adults. The potential lethal oral dose in adults is 4 g pure camphor.
- Children: The lethal dose for children is estimated to be 0.5 to 1.0 g (Siegel & Wason, 1986); for infants,the oral LDLo is 70 mg/kg.
- Carcinogenicity: Carcinogenicity tests have been negative.
- Mutagenicity: Not mutagenic with the Ames test.

**Medicinal Properties and Uses**[20]

- Camphor has stimulant antispasmodic, **anti-septic**, anti-pyretic and aphrodisiac properties. When locally applied it is **stimulant** and **anodyne**.
- It is useful in adynamic fevers, **inflammation**, choleraic diarrhoea, whooping cough, epilepsy, chorea, asthma, angina pectoris and puerperal convulsions.
- It is also used in treating hysteria, palpitation, in affection of the genito-urinary system as dysmenorrhoea, spermatorrhoea.
- It is also useful in **irritable conditions of the nasal mucus membrane** causing sneezing and frontal headache.
- Used as an anti-dote to strychnine poisoning.
- Externally it is a useful stimulant to stiff and painful parts and is used in chilblains, rheumatism, neuralgic affections, sprains, bruises, bedsores and pruritus.

# Part - 2
# A Study on Karpoora Mezhugu for Peenisam

## Review of Literature
## Botanical Aspects

## 3.3 Botanical Aspect

**Root Bark of Mathuzhai (*Punica granatum*)**

**Classification:**

- Kingdom Plant kingdom
- Class Dicotyledons
- Subclass Polypetalae
- Series Calyciflorae
- Order Myrtales
- Family Punicaceae
- Genus *Punica*
- Species G*ranatum*

**Vernacular names** [5]

- Tamil Mathuzhai
- Telugu Danimma
- Malayalam Matulem
- Kannada Dalimba
- Hindi Anar
- Gujarathi Dadam

**Habitat**

Found growing wild in the warm valleys and other hills of the Himalayas between 900 -1800 m and also cultivated throughout India.

**Description**

A shrub or small tree 5 -10 m high. Bark smooth, dark grey; Branchlets sometimes spinescent; leaves 2.0-8.0 cm long, oblong, shinning above; flowers usually scarlet red or yellow mostly solitary or 2-4 together; fruits globose, crowned by persistant calyx with a coriaceous woody rind and interior septate with membranous walls containing numerous seeds; seeds are angular with flesh testa which is red, pink or whitish.

**Parts used:**

Root bark, stem bark, fruits including rind,leaves and flowers.

**Chemical constituents and medicinal uses of root bark**

- **Organic:** Alkaloids, Steroids, Glycosides, Carbohydrates, Phenolic compounds, Tannins, Resins.
- **Inorganic**: Iron, Sodium, Calcium, Potassium and Phosphate.

The root bark contains 22% of punicotannic acid (which gives it the astringent property) and a yellow colouring matter.[56] The root bark contains a number of alkaloids belonging to pyridine group. Isopelletierine is the most prominent alkaloid, possess anthelmintic property. The tannate of alkaloids known as pelletierine tannate is the most effective because of its insolubility which prevents its rapid absorption and thus enables a prolonged contact with worms. D-Mannitol occurs lesser amounts which posseses mild antispasmodic and anthelmintic properties. [57]

Extracts, exhibited **Antibiotic** activity. Aqueous extract of the root bark was found to inhibit completely the activity of *Mycobacterium Tuberculosis*. Alcoholic extracts of root bark showed activity against *Pyogenes var aureus*.

Over dose of isopelleterine produces complete paralysis, and sometimes dizziness. Excessive doses produce mydriasis, amblyopia, vomiting, diarrhea and extensive muscular weakness.

**Studies on *P. granatum*:** 2002-03 -1634 **Immunomodulatory** activity of *Punica granatum* in rabbits - Journal of ethno pharmacology V 78(1), pp 85 - 87, year 2001.

## Valmizhagu (*Piper cubeba*)

### SYNONYMS

*Cubeba officinalis*

### Classification

- Kingdom Plant Kingdom
- Class Dicotyledons
- Sub Class Monochlamydeae
- Order Piperales
- Family Piperaceae
- Genus *Piper*
- Species C*ubeba*

### Vernacular Names [58]

- Tamil Valmizhagu
- Telugu Chalava miriyalu
- Bengali Kabab chini
- Hindi Sheetal chini
- Sanskrit Kankola
- English Cubebs, Tailed pepper

### Habitat

A native of Java and the Moluccas cultivated to some extent in India.

### Description

A liana like woody climber. Leaves glabrous, ovate, oblong with cordate or rounded base, tapering or shortly acuminate, firmly coriaceous, glaborous or sparsely pubescent beneath, lower surface densely provided with minute sunk glands; spikes at first terminal but becoming leaf opposed, solitary. Bracts papillose, pubescent above. Flowers unisexual; peduncle ½-2 cm ; spikes 3-10 cm; Male bracts oblong, obovate 1.5-2 mm; stamens 3; female spikes often curved bracts oblong 4-5mm by+ 8mm;richis of spikes glabrous or near insertion of bract with white longish hairs; stigmas 3-5, berry from 3-15 mm; stipitate base globose sordidly orange 6-8 mm in diameter; seed globose.

**Parts Used**

Fruits and its oil

**Chemical Constituents:**

- **Organic:** Carbohydrates, phenols, proteins, steroids and tannins.
- **Inorganic**: Iron, calcium, lead, magnesium and potassium.

**Action**

- **Stimulant**
- Carminative
- Stomachic
- Expectorant

**Dosages** [59]

- Powdered drug 1-2 gm
- Infusion 30-60 ml
- Oil of cubeb 5-10 drops

**Medicinal Uses**

- Smoking cubebs is a popular method of **treating nasal catarrh** and hay fever. [60]
- Powdered long pepper administered with honey will relieve cough, cold, asthma,hoarsiness and hiccup.[61]
- For hoarsiness and catarrh a mixture of long pepper, long pepper root, black pepper and ginger in equal parts is a useful combination.
- In catarrhal fever with difficulty of breathing, a powder made of equal parts of karkatakashingi, and long pepper is given in 1 dracham doses with honey.

**Studies on *P. cubeba***

2006-01-0104, Effect of some medicinal plants on **plasma antioxidant** system and lipid levels in rats, Phytotherapy Research, V19 (5), Pp 382-386, 2005

## Kirambu (*Syzygium aromaticum*)

### Synonyms [61]

- *Myritus carophyllus*
- *Caryophyllus aromaticus*
- *Eugenia caryophyllata*
- *Eugenia aromaticum*

### Classification

- Kingdom Plant Kingdom
- Class Dicotyledons
- Sub Class Poly petalae
- Series Calciflorae
- Order Myrtales
- Family Myrtaceae
- Genus *Syzygium*
- Species A*romaticum*

### Vernacular Names

- Tamil Kirambu
- Telugu Karavappu
- Bengali Lavang
- Hindi Laung
- Sanskrit Lavanga, srisamgyam, devakusumam
- English cloves

### Habitat [62]

India and Ceylon

The clove tree is an evergreen tree which grows to a height ranging from 10 - 20 m, having large oval leaves and crimson flowers in numerous groups of terminal clusters. The flower buds are at first pale color and gradually become green, after which they develop in to a bright red, when they are ready for collecting. Cloves are harvested when 1.5 - cm long, and consist of a long calyx, terminating in four spreading sepals, and four unopened petals which form a small ball in the centre.

**Parts used:**

Fruit, dried flower buds and oil.

**Active compounds:** [61]

The compound responsible for the cloves aroma is eugenol. It is the main component in the essential oil extracted from cloves, comprising 72-90%. Eugenol has **antiseptic** and anesthetic properties. Other important constituents include essential oils acetyl eugenol, beta-caryophylline and vanillin; crategolic acid, tannins, gallotannic acid, **methyl salicylate (pain killer)**; the falvanoids eugenin, kaempferol, rhamnetin, and eugenitin; triterpenoids like oleanolic acid, stigmasterol and campesterol; and several sesquiterpenes.

**Actions:**

- Stomachic
- Carminative
- **Stimulant**
- Aromatic
- Antispasmodic

**Medicinal uses**

- Cloves as are used as a carminative, to increase hydrochloric acid in the stomach and to improve peristalsis.
- Cloves are natural Anthelmintic.
- **A paste made of cloves applied to the forehead and to the nose-bridge is a popular remedy in headache and coryza**.
- Oil internally increases circulation, promotes digestion of fatty and crude food, promotes nutrition and relieves gastric and intestinal pains and spasms.
- It stimulates the skin, salivary glands, kidneys, liver and bronchial mucus membrane.
- The oil is used as an anodyne for dental emergency.
- Oil is used as an application in rheumatic pains, sciatica, to the head in headache.

**Toxicity:** [62]

It is excreted in the breath, perspiration, bile, milk and urine.

Cloves can be irritating to the gastro-intestinal tract, and should be avoided by people with gastric ulcers, colitis or irritable bowel syndrome. In overdoses, cloves can cause vomiting, nausea, diarrhoea and upper gastrointestinal hemorrhage. Severe cases can lead to changes in liver function, dyspnea, and loss of consciousness, hallucination and even death. The internal use of the essential oil use can cause severe kidney damage.

**Studies On *S.aromaticum***

- Antimicrobial screening of some Indian species (clove), Phytotherapy research V 13 (7) Pp 616-618, 1999

- 2000-02-0995 – Antimicrobial activity of Jordanian medicinal plants. Pharmaceutical biology V 37(3) Pp 196-201, 1999.The most susceptible bacteria were ***Pseudomonas aeruginosa, Bacillus aureus and Streptococcus pyogenes.***

- Invitro evoluation of **antioxidant activity** of essential oils and their components, Flavour and Fragrance journal V 15 (1) Pp 12-16 2000

## Elumichai (*Citrus acida*)

### Synonyms [63]

- *Citrus medica,*
- *Citrus aurantifolia,*
- *Citrus bergamia*

### Classification

- Kingdom Plant Kingdom
- Class Dicotyledons
- Sub Class Poly petalae
- Series Disciflorae
- Order Geraniales
- Family Rutaceae
- Genus *Citrus*
- Species *Acida*

### Vernacular Names

- Tamil Elumichai
- Telugu Nimma
- Kannada Limbe, Nimbe
- Malayalam Erumichinarkam
- Sanskrit Jambira
- English Lime

### Habitat [64]

Found in tropical parts of India, including the tropical valleys of Himalayas and Khasi mountains. Cultivated in WestBengal, UttarPradesh, Delhi, Punjab, MadhyaPradesh, Maharashtra, Karnataka, AndraPradesh and Tamil.Nadu.

### Description

A thorny shrub or small bushy tree; leaves coriaceous, persistent with winged petioles. Leaflets elliptic, oblong or ovate, lanceolate, acute or obtuse; flowers small, white or pinkish, 5-10 in a raceme; fruits globular, ovoid or oblong, often mamillate at the apex, rind thin tightly attached, green or spotted with yellow green

spotted with yellow when ripe, pulp yellowish green acidic and aromatic. Flowers in April – May and fruits in May –June.

**Parts used:**

Fruits and leaves.

**Actions:** [61]

- Refrigerant
- Antiscorbutic
- **Antiseptic**
- Germicide
- Febrifuge
- Digestive
- Stomachic
- Anthelmintic

**Constituents:** [61, 65]

Ascorbic acid, phosphoric and malic acids, calcium, phosphorus, iron, sodium, citrates of potassium, vitamin A, thiamine, riboflavin, niacin, mucilage and ashes.

**Medicinal uses:**

- Hot lemon juice is **useful in colds** and mild forms of influenza. For a bad cold, the juice of 2 lemons in a pint of boiling water sweetened to taste and taken at bed time acts like magic
- It is also a preventive of influenza and of any tendencies to pneumonia.
- Lemon juice, ginger juice, rock salt, black salt and sonchal salt in equal parts mixed together and warmed is used as a snuff for promoting discharge of phlegm in fevers, complicated with pain in the head, throat and chest.
- It is an antidote which should always be first tried.
- Lime juice is most useful in dysentery with sloughing of the mucus membranes.

## Karumbu Vellam (*Saccharum officinarum*)

Vellam is a product obtained on concentrating sugarcane juice with or with out prior purification into a solid or semi sold state. It is produced almost throughout India and forms an important item of the Indian diet. [66]

**Classification**

- Kingdom Plant Kingdom
- Class Monocotyledons
- Series Glumaceae
- Family Gramineae
- Genus *Saccharum*
- Species *Officinarum*

**Vernacular Names**

- Tamil Vellam
- Telugu Bellanim
- Kannada Bella
- Malayalam Vella
- Hindi Gur
- English Jaggery

**Actions:**

- Preservative
- Demulcent
- **Antiseptic**
- **Pectoral**

**Constituents:** [67]

| Parameter | Value |
|---|---|
| Fibre | 0.0 g |
| Ash | 1.1 g |
| Calcium | 80 mg |
| Phosphorous | 60 mg |
| Iron | 2.4 mg |
| Thiamine | 0.02 mg |
| Riboflavin | 0.07 mg |
| Niacin | 0.3 mg |
| Ascorbic Acid | 3 mg |

**Medicinal Uses:**

- Jaggery purifies the blood, prevents rheumatic afflictions and disorders of bile, regularizes blood flow and enriches the bone marrow, blood, fat, flesh and phlegm.
- Jaggery is known to improve throat conditions, normalizing semen and sperms, serving as a lactogenic and cardiac tonic.
- It also known to have effect in anemia, jaundice, breathlessness, and kidney problems.
- Reported to have effect on **countering ill-effects of pollution**.

**Studies Made On *S. Officinarum***

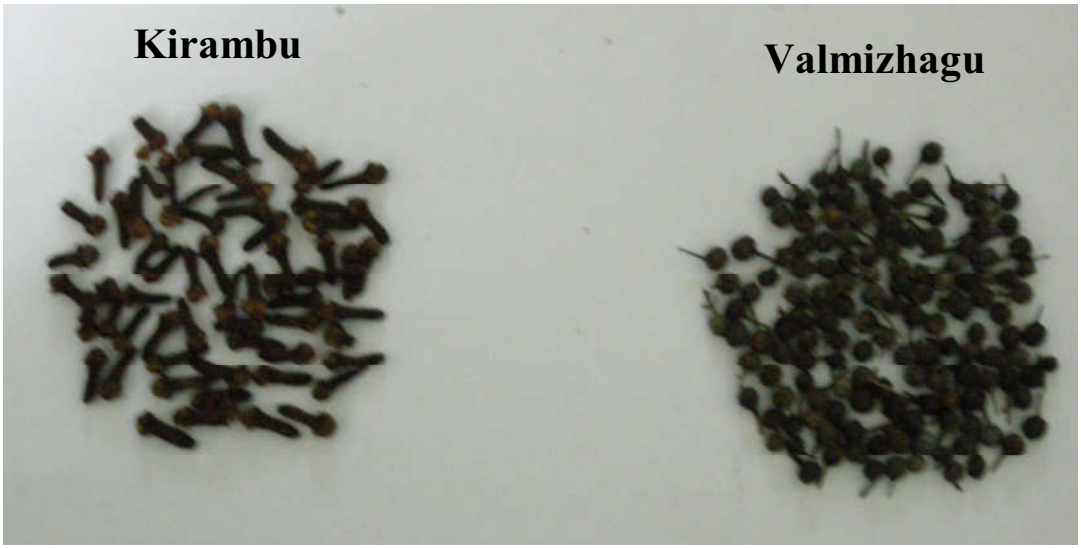
2006-02-0660, **Radio protective effect of sugarcane** extract in chickens. Phytotherapy Research V19 (6): Pp496-500, 2005.

# Part - 2
# A Study on Karpoora Mezhugu for Peenisam

## Materials, Methods and Results
## Preparation of the Drug


# Lime Juice

**Mathuzhai Verpattai**




# Karpoora Mezhugu

# 4. Materials, Methods and Results

## 4.1 Preparation of the test drug:

The Karpoora Mezhugu was selected from the literature "**Kannusamy Pillai Parambarai Vaithyam"**

The required raw drugs Karpooram, Valmizhagu, Kirambu, Karumbu Vellam were procured from the raw-drug shop in Chennai. Mathuzhai Verpattai was collected at Alangulam in Tirunelveli District. Lemon was procured from the local market.

Karpooram, Valmizhagu, Kirambu, Mathuzhai Verpattai - each 35 g, Karumbu Vellam – 140 g, Lime juice 50 ml, is the composition for the preparation of the trial drug.

Valmizhagu, Kirambu and Mathuzhai Verpattai were finely powdered individually and kept.

Lime juice was taken in a used earthen plate. Powdered camphor was added to the juice. Then the plate was placed in flame till creamy consistency was attained. This was cooled and poured in a clean kalvam and the above mentioned powdered drugs were added and were ground together. To this Karumbu Vellam was added and blended till it attains a waxy consistency.

**Administration of the test drug:**

Dose: 400 mg
Route: Enteral
Vehicle: Water

# Part - 2
# A Study on Karpoora Mezhugu for Peenisam

## Materials, Methods and Results
## Bio Chemical Analysis

**4. 2 Bio-Chemical Analysis:** (Dept of Bio Chemistry, GSMC, Chennai)

**Preparation of Extract:**

5 gm of Karpoora mezhugu is weighed accurately and placed in 250 ml clean beaker and 50 ml of distilled water is added. Then it is boiled for about 10 minutes. After which it is cooled and filtered in a 100 ml volumetric flask and made up to 100 ml with distilled water.

Table – 1

| Sl.No | Experiment | Observation | Inference |
|---|---|---|---|
| I Test for acid radicals | | | |
| 1) | Sulphates | | |
| a) | 2 ml of the above prepared solution was taken in a test tube. To this 2 ml of 4% Ammonium oxalate solution was added. | Cloudy appearance | Presence of sulphate |
| b) | 2 ml of the above prepared solution was taken in a test tube. To this 2 ml of sodium carbonate extract was added with 2 ml of dilute HCL until the effervescence ceases off. Then 2 ml of Barium Chloride solution was added. | A White precipitate insoluble in concentrated HCL was obtained | Presence of Sulphate was confirmed |
| 2 | Chloride | | |
| | 2 ml of Sodium Carbonate extract was added with dilute Nitric Acid till the effervescence ceases. Then 2 ml of Silver nitrate solution was added. | Cloudy white precipitate completely soluble in excess of ammonium hydroxide solution | Presence of chloride |
| 3 | Oxalates | | |
| | 5 drops of clear solution was added with 2ml of dilute sulphuric acid and slightly warmed. To this, 1 ml of dilute potassium permanganate solution was added. | Potassium permanganate solution was decolourised | Presence of oxalate. |

Table – 1 (cont…)

| Sl.No | Experiment | Observation | Inference |
|---|---|---|---|
| II Test for Basic Radicals | | | |
| 4 | Aluminium | | |
| | To the 2 ml of extract, Sodium Hydroxide solution was added in drops to excess | White precipitate observed soluble in excess of sodium hydroxide was obtained | Presence of Aluminium |
| 5 | Calcium | | |
| | 2 ml of Extract was added with 2 ml of 4% Amonium Oxalate solution | Cloudy appearance | Presence of Calcium |
| 6 | Magnesium | | |
| | To the 2 ml of extract, Sodium Hydroxide solution was added in drops to excess | White precipitate observed soluble in excess of sodium hydroxide was obtained | Presence of Magnesium |

**Results:**

- **Acid Radicals**: Sulphate, and Chloride
- **Basic Radicals:** Aluminium, Calcium and Magnesium

# Part - 2
# A Study on Karpoora Mezhugu for Peenisam

## Materials, Methods and Results
## Preliminary Phytochemical Analysis

## 4.3 Preliminary Phytochemical Analysis

This study was carried out at Vel's College of Pharmacy, Velan Nagar, Pallavaram Chennai - 600 117 Tamil Nadu, India.

The following tests were done:

- For Alkaloids - Mayer's Test, Dragendroff's Test.
- For Carbohydrates And Glycosides - Molisch's Test, Borntrager's Test.
- For Cardiac Glycosides - Legal's Test, Keller-Killiani Test.
- For Sugars - Fehling's Test, Benedict's Test.
- For Steroids - Liebermann's Burchard Test, Salkowski Test.
- For Tannins.
- For Proteins - Millon's Reagent, Biuret Test, Ninhydrin Test, Xanthoprotein Test.
- For Terpenoids - Noller's Test.
- For Flavonoids - Shinoda Test.
- For Anthocyanins.
- For Quinones.

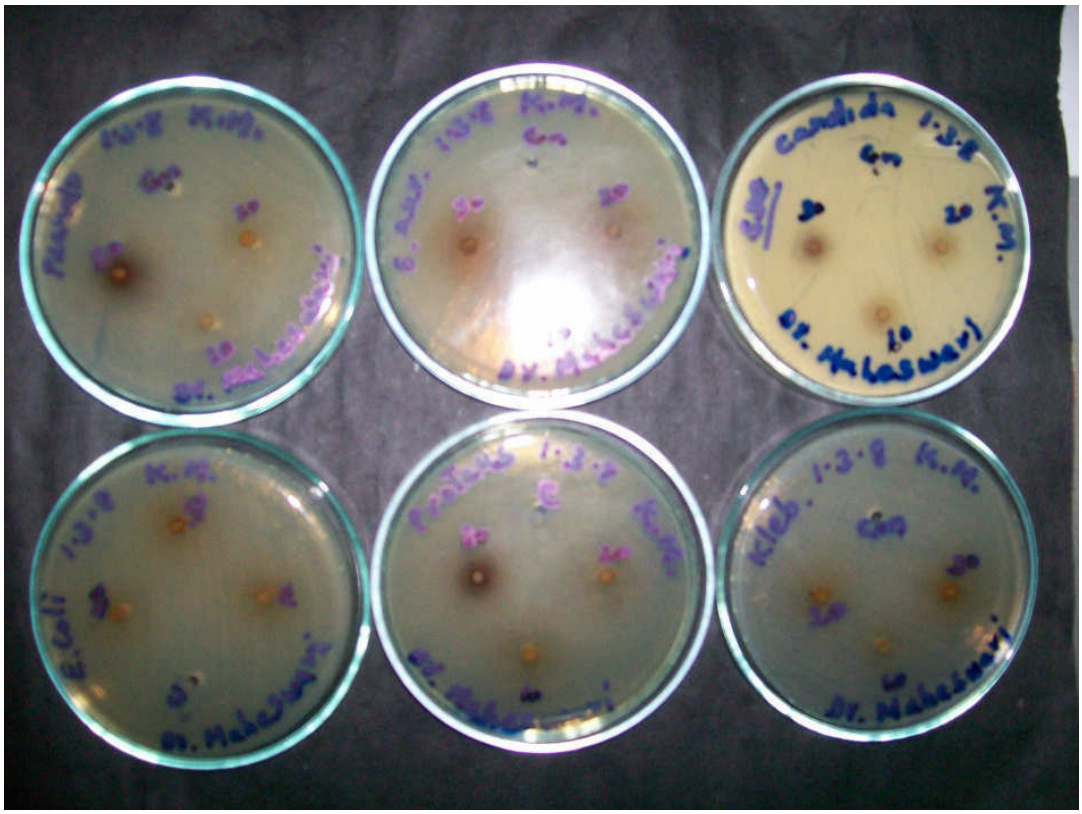
**Preliminary phytochemical Results**

Preliminary phytochemical screening revealed the presence of Sugar, Tannins, Flavonoids, Triterpenoids and Steroids.

# Part - 2
# A Study on Karpoora Mezhugu for Peenisam

## Materials, Methods and Results
## Antimicrobial Study

# Anti microbial Study



## 4.4 Antimicrobial Study

The following microorganisms were used for the study. Standard strain of *Staphylococcus aureus, Esherichia coli, Klebsiella pneumoniae, Pseudomonas aeruginosa, Proteus vulgaris, Candida albicans*. These micro-organisms were obtained from the laboratory stock of the Department of Pharmaceutical Biotechnology, Vel's college, Pallavaram.

### Antimicrobial Study Results

The minimum inhibitory concentrations (MICs) of the **Karpoora Mezhugu** against the test organisms are shown in Table 2. The **Karpoora Mezhugu** showed activity against *Staphylococcus aureus* was found to be excellent. But the activity against *proteus* was moderate and effective at median dose level (Table-2). In general, the gram positive organisms are more sensible than others. The MIC was 20µg /ml against both the clinical isolates of *Staphylococcus aureus*, *Candida albicans*, and 20 & 30µg/ml against *proteus vulgaris* and *Pseudomonas aeruginosa*. The control did not produce any inhibitory activity against the organisms. The zone of inhibition produced by 30µg /ml of the **Karpoora Mezhugu** was 16mm against *Pseudomonas*, 12mm against S. aureus and 16mm against the clinical isolates of *Proteus*. The zone of inhibition produced by **Karpoora Mezhugu** against standard strains of Candida, *Esherichia coli*, *Klebsiella pneumoniae* was much lower or negligible (3mm).

**In vitro antimicrobial activity of 10, 20, 30µg /ml of the Karpoora Mezhugu.**

**Table - 2**

| Organisms | Mean diameter of zone of inhibition in mm | | | |
|---|---|---|---|---|
| | Control | 10µg/ml | 20µg/ml | 30µg/ml |
| *Esherichia coli* | 0 | 0 | 0 | 0 |
| *Klebsiella pneumonia* | 0 | 0 | 0 | 0 |
| *Pseudomonas aeruginosa* | 0 | 0 | 0 | 16 |
| *Staphylococcus aureus* | 0 | 6 | 8 | 12 |
| *Proteus vulgaris* | 0 | 0 | 6 | 16 |
| *Candida albicans* | 0 | 0 | 0 | 0 |

# Part - 2
# A Study on Karpoora Mezhugu for Peenisam

## Materials, Methods and Results
## Pharmacological Study

## 4.5 Pharmacological Studies

### Animals

Albino mice were used in this study; they were maintained under standard animal house conditions, fed on commercial feed pellet, and water *ad libitum*. All experimental protocols were approved by IAEC.

### Acute toxicity

Healthy albino mice of either sex, weighing around 22-28 g, and overnight-fasted, were used for study. Food was withdrawn during the study, however free access to water was provided. The weighed animals were randomly assigned to seven groups of six animals each (n=6), and were administered the Karpoora Mezhugu orally, in the increasing doses 50, 100, 500, 1000, 2000 and 4000 mg/kg. (Table-3)

### Acute toxicity Results

The animals showed minor changes in general behaviour or other physiological activities. The symptoms like continuous grooming, aggressive behaviour at high dose range, not responding to stimuli, sedation, muscle twitch in all the group and hyperactivity at $15^{th}$ minute after drug treatment, convulsion, diarrhoea ($45^{th}$ min), writhing was generally observed in the above 500mg/kg dosed animals. Death was recorded during the treatment period in treated groups given 2-4g/kg of Karpoora mezhugu orally. So, it can be concluded that a test substance is practically toxic after an acute exposure at the dose range of 4g/kg.

Neither toxicity signs nor behavioural changes observed up to 4000 mg/kg.

**Incremental dose finding experiment and its Signs of Toxicity**

**Table-3**

| Treatment Group | Dose Mg/kg | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| I | 50 | + | - | - | + | + | + | + | + | - | - | - | - | - | - | - | - | - | - | - | - |
| II | 100 | + | - | - | + | + | + | + | + | - | - | - | - | - | - | - | - | - | - | - | - |
| III | 250 | + | - | - | + | + | + | + | + | - | - | - | - | + | - | - | - | + | - | + | - |
| IV | 500 | + | - | + | + | + | + | + | + | - | - | - | - | + | + | - | - | + | - | + | - |
| V | 1000 | + | + | + | + | + | - | + | + | - | - | + | - | + | + | - | + | ++ | - | + | - |
| VI | 2000 | + | + | + | + | + | - | + | + | - | + | + | - | + | + | - | + | ++ | + | + | + |
| VII | 4000 | + | + | + | + | - | - | - | + | 1+ | + | - | - | - | - | - | + | ++ | + | ++ | +++ |

1. Alertness 2. Aggressiveness 3. Pile erection 4. Grooming 5. Gripping 6. Touch Response 7. Increased Motor Activity 8. Tremors 9. Convulsions 10. Muscle Spasm 11. Catatonia 12. Muscle relaxant 13. Hypnosis 14. Analgesia 15. Lacrimation 16. Exophthalmos 17. Diarrhoea 18. Writhing 19. Respiration 20. Number of Deaths (Mortality)

**Anti-inflammatory study**

Anti-inflammatory study was carried out in formalin induced paw edema in Wistar rats. Overnight-fasted Wistar rats were randomly assigned to three groups (n=6). Such animals received orally adjuvant, diclofenac, or the Karpoora Mezhugu. Inflammation was produced in these animals by injection of 0.1 ml of 1% w/v formalin into the subplantar region of left hind paw. The paw volume was measured using mercury displacement technique, with the help of plethysmograph at 0, 30, 60 and 120 minutes after formalin injection. The difference between 0 and 2h reading were taken as the volume of edema and percentage of edema inhibition, and was calculated for each group. The results are summarised as shown in Table 4.

**Anti-inflammatory activity results**

The formalin causes a local injury of the paw, is used as a model for pain, and localized inflammatory pain. There are two phases of responses, while the stimulus during the early phase is a direct chemical stimulation of nociceptors, and that during the late phase, involves inflammation. Formalin-induced pain is caused primarily by peripheral tissue inflammation. Acute inflammation may last for relatively shorter duration, ranging from few minutes to few days. Exudation of fluid and plasma proteins, emigration of leukocytes, and predominantly neutrophils, are characteristic changes. The Karpoora mezhugu as well as diclofenac showed antiphleogestic activity. This antiinflammatory activity was found to be statistically significant ($P<0.05$) at the concentration of 400 mg/kg and 800 mg/kg after 60minutes of drug treatment (Table 4).

**Anti-inflammatory Effect of Karpoora Mezhugu**

**Table - 4**

| Group | Dose(mg/kg) | Increase in paw volume (ml) | % inhibition |
|---|---|---|---|
| Control | 2 ml/kg | 0.90 ± 0.22 | - |
| Diclofenac Na | 150 | 0.23 ± 0.03 | 75.7 ± 2.18* |
| K.M. | 400 | 0.73 ± 0.05 | 19.0 ± 3.21* |
| K.M. | 800 | 0.71 ± 0.05 | 21.6 ± 0.56* |

Values are mean ± SE of six animals in each group, *$P<0.05$ when compared to control

**Analgesic activity**

**Eddy's hot plate method**

In this method, the pretested Swiss mice (reaction time: 2-4 sec) were assigned randomly into two groups of six animals each (n=6). The Karpoora Mezhugu was dissolved in water, and was administered orally. The delay in reaction time (hind paw licking/jump response) of animals, when placed on hot plate maintained at 55°±1 (Eddy's analgesiometer, INCO), was recorded and tabulated. The pain threshold is considered to be reached when the animals lift and lick their paws or attempt to jump out of the hot plate covered with Acrilic fiber door. The time taken for the rat to exhibit these characteristics (time reaction) was noted by means of a stopwatch. The animals were tested before and 15 min, 30 min, 45 min and 60 min after drug administration. A cut-off time was fixed at 15 sec, to avoid damage to the paws. Pentazocin, 5 mg/kg was used as standard analgesic. The results are summarised as shown in Table 5

**Analgesic activity Results**

In the thermal method, the Karpoora Mezhugu treated animals (400 and 800 mg/kg) exhibited statistically significant elevation in mean basal reaction time. Effect of Karpoora Mezhugu is almost comparable to that of standard drug. This point to the involvement of higher centre in the analgesic activity. However, it was less effective than standard drug, Pentazocin.

Karpoora Mezhugu in the doses of 400 and 800 mg/kg body weight, increased reaction time in a dose-dependent manner. The results were statistically significant ($P<0.05$).

**Analgesic Activity of Karpoora Mezhugu by Eddy's hot plate Method**

**Table -5**

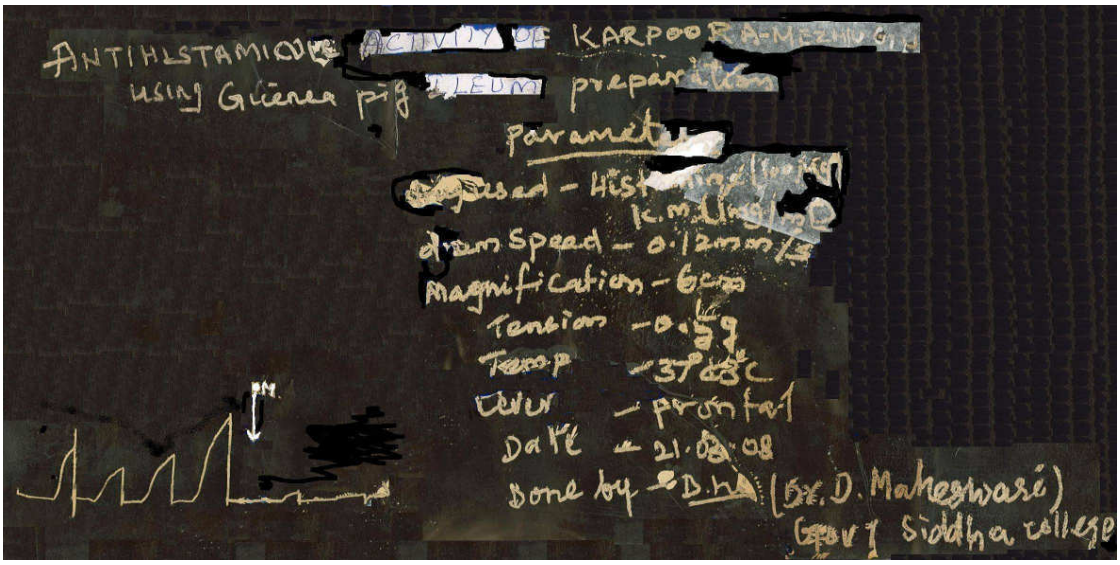
| Group | Dose (mg/kg) | Mean reaction time (in secs) | Percentage increase in basal reaction time |
|---|---|---|---|
| Adjuvant control | 2 ml/kg | 3.18±0.51 | - |
| Pentazocin | 5 | 11.0±0.56 | 75.5* |
| K.M. | 400 | 4.60±0.60 | 29.8 |
| K.M. | 800 | 8.50±0.5 | 59.5* |
| | | | |

Values are expressed as mean±SE of six animals, *P<0.05 when compared to control

**Statistical analysis**

Values were expressed as mean ± SEM. The statistical significance was analyzed by One-Way ANOVA followed by the Dunnet's multiple comparison tests using INSTAT-3 computer software programme. P<0.05 was considered as significant.

# Anti-histaminic activity



**Effect of Karpoora Mezhugu against Histamine in Isolated Guinea Pig Ileum**

**Animals:** Adult guinea pig (400-600gms) obtained from King Institute, Chennai was used for the experiment.

**Drugs:** Histamine acid phosphate was used.

**Test drug preparation:**

The test drug concentration was 100 microgram per ml prepared by dissolving with 2% CMC in distilled water.

**Materials and Methods**

**Preparation of guinea pig ileum**

Guinea pig was stunned and bled. Segments of the ileum (4 cm long) were removed 10 cm from the caecum. The strip was incubated for 30 min before constructing concentration-response curves to the test drug. The pH of the stock solution was adjusted, before adding to the organ bath, and when in the bath was measured. Contact time of drug or standard agonist with the tissue was maintained at 5 min intervals.

**Results**

The pH of the extract before adding to the organ bath, and in the organ bath remained at 7.0. The Karpoora Mezhugu had an antagonistic effect on guinea pig ileum. The contractile response was concentration dependent.

**DISCUSSION**

The aim of this study was to determine the effect of Karpoora Mezhugu on isolated guinea pig ileum. As low as 1 mg/ml of the test drug produced a response. As the pH of the extract before and after adding to the tissue in the organ bath remained constant, it is not likely that pH contributed to the activity of the Karpoora Mezhugu.

# Part - 2
# A Study on Karpoora Mezhugu for Peenisam

## Materials, Methods and Results
## Clinical Study

## ABOUT THE DISEASE

### பீனிசம்[53]

**வேறு பெயர்கள்**

நீர்க்கோவை, மூக்கு நீர்பாய்தல், மூக்கடைப்பு

**இயல்**

மூக்கின் துளைக்குள் சிவந்து, தும்மல், கண் சிவந்து நீர் வடிதல், மூக்கு நீர் பாய்தல், தலைநோதல், அடிக்கடி மூக்கைச் சீந்திச் சளி, சீழ், குருதி வெளியாதல் என்னும் இயல்பையுடைய நோயாம்.

**நோய் வரும் வழி**

மிக்க குளிர்ந்த நீரைப் பருகல், பனி அல்லது குளிர்ந்த காற்றிலீடுபடல், தனக்கொவ்வாப் புகை, புழுதி கூடிய காற்று, தும்மலை உண்டாக்கக்கூடிய பொருள்களான இவற்றை முகர்வதாலும், உடல் வெப்பமடைந்துள்ளபோது சரேலென ஐயத்தைப் பெருக்கக்கூடியதான குளிர்ந்த நீரில் தலை முழுகல், குளிர்ச்சி தரும் பொருள்களை உட்கொள்ளல் ஆகியவற்றாலும் இந்நோய் பிறக்கும். யோக நிலையில் உள்ளபோது, கீழ்வாய்க்கனல் தன்னளவில் மிகுந்து, தலைமூளை வரைப் பாய்ந்து, அங்கு வெப்பத்தையுண்டாக்கி இந்நோயைப் பிறப்பிக்கும்.

**குறிகுணங்கள்**

- மூக்கில் ஒருவகை எரிச்சலும், நமைச்சலும் தாங்கமுடியாதபடி உண்டாவதால் மூக்கு முனையைத் தேய்த்து சிவக்கச் செய்தல்.
- கண்கள் சிவந்து, கண்ணீர் வடிதல்.
- மூக்கையடைத்தாற் போல் பேசுதல்.
- காதடைத்தல், காதில் நமைச்சலுண்டாதல்.
- தலைநோய்

- மூக்கையடைப்பதால், மூச்சுத் திணறல்
- மூக்கிலிருந்து பனிநீர் போல் சொட்டுதல், முதலிய குறிகுணங்களை உண்டாக்கும்.

**நாடி, நடை**

பித்த ஐய கலப்பு நாடிகளிலும், ஐய நாடி மிகினும், ஐய வளிக் கலப்பு நாடியிலும் பீனிச நோய் உண்டாகும்.

**உணவு**

ஐயப்பெருக்கால் வரும் நோயாதலால், உடற்கு வெப்பத்தைத் தரும் பொருளாகவே கொள்ள வேண்டும்.

மிளகு சேர்ந்த இரசம், குழம்பு வகைகளைக் கொள்ளல் வேண்டும், கரிசாலை, மணத்தக்காளி, கத்தரிப்பிஞ்சு, முருங்கைக்காய், உருளைக்கிழங்கு முதலிய காய்கறிகளைக் கொண்டு, சுரைக்காய், பூசணிக்காய், பீர்க்கு, புடலை முதலிய ஐயத்தைப் பெருக்கும் காய்களை விலக்க வேண்டும்.

கவிச்சிப் பொருள் கொள்வோர் வரப்பு நண்டு, கச்சற்கருவாடு இவைகளில் ஒன்றில் மிளகு கூட்டிக் கொள்ளலாம்.

## 4.6 Clinical Study

This was an open non comparative clinical trial

The clinical study was carried out in Gunapadam Post Graduate Out Patient Department, Arignar Anna Hospital, Chennai-106.

**Selection Of Patients**

50 patients were selected in both sexes. The selection of patients was based on the following inclusion and exclusion criteria.

**Inclusion Criteria**

- Age-16 - 65
- Sex – both male and female
- Sneezing
- Rhinitis
- Nasal congestion
- Pain

**Exclusion Criteria**

- Fever
- Common cold
- Nasal polyps
- Migraine head-ache

**Withdrawal Criteria**

- Irregular treatment
- Patients who followed dual treatment

**Treatment Schedule**

- Karpoora mezhugu 400 mg two times a day after food
- Vehicle-water
- Route of administration-enteral route
- Duration -6 weeks

**Study Procedures**

50 patients were selected for clinical trial on the basis of inclusion criteria. For all the cases full clinical data was recorded and they were diagnosed on the basis of Siddha principles and Modern parameters. The patients were followed up for 6 weeks and the evaluation was recorded at the end of each week and a complete clinical and the following lab investigations were done at the first week and at the end of the 6th week.

- Urine routine
- Blood
    - TC,DC, ESR
    - Sugar - Random, cholesterol, Urea
- X- ray Para nasal sinuses

**Medical Advice And Diet**

- The patients were advised,
- To avoid known allergens like inhalation of dust, fumes and aromatic substances which trigger sneezing
- To avoid cold and dusty environment
- To avoid smoking
- To drink and bath in warm water and dry hair well after bath
- To avoid watery vegetables like radish, pumpkin etc.
- To do yoga and pranayama.

**Bio-Statistical Analysis:**

The statistical analysis of the clinical observations was analyzed with the help of a statistician where the following two tests were conducted to find the significance of the results.

**T – Test:** The t- test is a statistical test that helps to show if there is a real difference between different treatments / phases of treatments, being tested in a controlled clinical trial.

**Chi square test:** A statistical test used to determine the probability of obtaining the observed results by chance, under a specific hypothesis.

| S. No | OP. No | Name | Age | Sex | Occupation | Duration | | Complaints | Stage | Blood | | | | | | | | Urine | | | X-ray | Results |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Date | Date | | | TC | DC - % | | | ESR - mm | | Sug - R | Chl | Alb | Sug | Dep | PNS | |
| | | | | | | | | | | cells/cu.mm | P | L | E | 1/2hr | 1hr | mg/dl | mg/dl | | | | | |
| 1 | 4133 | Saroja | 47 | F | H.wife | 21/04/07 | 12/06/07 | Sneezing, running nose, nasal congestion, head ache | Before | 9400 | 53 | 42 | 5 | 20 | 44 | 124 | 142 | Nil | Nil | Few epi.cells | Rt. frontal sinusitis | Good |
| | | | | | | | | | After | 9200 | 61 | 34 | 5 | 12 | 16 | 112 | 117 | Nil | Nil | Few epi.cells | | |
| 2 | 4966 | Satheesh Kumar | 43 | M | Shop Worker | 23/04/07 | 28/05/07 | Sneezing, running nose, nasal congestion, head ache | Before | 9200 | 64 | 31 | 5 | 3 | 7 | 98 | 113 | Nil | Nil | Occ.puscells | Bi.lat frontal sinusitis | Good |
| | | | | | | | | | After | 9000 | 66 | 29 | 5 | 5 | 12 | 112 | 120 | Nil | Nil | Few epi.cells | | |
| 3 | 5161 | Vimal | 25 | M | Press worker | 24/04/07 | 30/05/07 | Sneezing, nasal congestion, head ache | Before | 9200 | 54 | 41 | 5 | 10 | 22 | 102 | 142 | Nil | Nil | Few epi.cells | Rt. maxillary sinusitis | Good |
| | | | | | | | | | After | 9800 | 62 | 34 | 4 | 10 | 12 | 114 | 136 | Nil | Nil | Few epi.cells | | |
| 4 | 8021 | Arumugam | 43 | M | Vendor | 02/05/07 | 05/06/07 | Sneezing, running nose, head ache | Before | 9200 | 64 | 31 | 5 | 3 | 7 | 132 | 148 | Nil | Nil | Occ.puscells | Bi.lat maxillary sinusitis | Good |
| | | | | | | | | | After | 9200 | 56 | 39 | 5 | 5 | 10 | 128 | 138 | Nil | Nil | Few epi.cells | | |
| 5 | 7944 | Anand | 24 | M | I T worker | 12/05/07 | 17/06/07 | Sneezing, nasal congestion, head ache | Before | 8100 | 63 | 33 | 4 | 8 | 20 | 130 | 118 | + | Nil | Few epi.cells | Normal study | Good |
| | | | | | | | | | After | 8200 | 64 | 34 | 2 | 5 | 12 | 115 | 123 | Nil | Nil | Few epi.cells | | |
| 6 | 9472 | Natarajan | 53 | M | Koolie | 04/06/07 | 09/07/07 | Sneezing, running nose, nasal congestion, head ache | Before | 8600 | 52 | 41 | 7 | 10 | 17 | 96 | 128 | Nil | Nil | Few epi.cells | Rt.frontal sinusitis | Good |
| | | | | | | | | | After | 9200 | 54 | 40 | 6 | 8 | 15 | 113 | 125 | Nil | Nil | Few epi.cells | | |
| 7 | 415 | Shanthi | 52 | F | H.wife | 07/06/07 | 10/07/07 | Sneezing, nasal congestion, head ache | Before | 9600 | 52 | 43 | 5 | 12 | 20 | 123 | 148 | Nil | Nil | Occ.puscells | Bi.lat maxillary sinusitis | Moderate |
| | | | | | | | | | After | 9400 | 60 | 35 | 5 | 7 | 13 | 126 | 136 | Nil | Nil | Occ.puscells | | |
| 8 | 4330 | Ekambaram | 65 | M | Koolie | 19/06/07 | 27/07/07 | Sneezing, running nose, nasal congestion, head ache | Before | 9600 | 61 | 32 | 7 | 7 | 10 | 128 | 156 | Nil | Nil | Few epi.cells | Bi lat.maxillary sinusitis | Good |
| | | | | | | | | | After | 9800 | 63 | 34 | 3 | 7 | 12 | 106 | 135 | Nil | Nil | Few epi.cells | | |
| 9 | 4342 | Amutha | 33 | F | H.wife | 19/06/07 | 03/08/07 | Sneezing, running nose, nasal congestion, head ache | Before | 9600 | 52 | 40 | 8 | 24 | 40 | 114 | 124 | Nil | Nil | Few epi.cells | Bi lat.maxillary sinusitis | Moderate |
| | | | | | | | | | After | 9400 | 60 | 34 | 6 | 8 | 15 | 98 | 128 | Nil | Nil | Few epi.cells | | |
| 10 | 6220 | Latha | 35 | F | H.wife | 20/06/07 | 03/08/07 | Sneezing, running nose, head ache | Before | 9600 | 55 | 41 | 4 | 12 | 20 | 120 | 136 | Nil | Nil | Occ.puscells | Bi lat.maxillary sinusitis | Good |
| | | | | | | | | | After | 9200 | 62 | 34 | 4 | 7 | 12 | 125 | 126 | Nil | Nil | Few epi.cells | | |
| 11 | 6272 | Hema | 30 | F | H.wife | 25/06/07 | 01/07/87 | Sneezing, running nose, nasal congestion, head ache | Before | 9800 | 53 | 45 | 6 | 11 | 25 | 113 | 138 | Nil | Nil | Few epi.cells | Bi lat.maxillary sinusitis | Good |
| | | | | | | | | | After | 9800 | 58 | 37 | 5 | 11 | 17 | 126 | 123 | Nil | Nil | Few epi.cells | | |
| 12 | 6278 | Geetha | 37 | F | H.wife | 25/06/07 | 01/07/87 | Sneezing, running nose, nasal congestion, head ache | Before | 9800 | 57 | 36 | 7 | 50 | 38 | 108 | 138 | Nil | Nil | Few epi.cells | Bi lat.maxillary sinusitis | Moderate |
| | | | | | | | | | After | 9600 | 62 | 34 | 4 | 12 | 15 | 128 | 143 | Nil | Nil | Few epi.cells | | |
| 13 | 7452 | Hyder Ali | 50 | M | Koolie | 29/06/07 | 01/07/87 | Sneezing, nasal congestion, head ache | Before | 9800 | 60 | 36 | 4 | 4 | 9 | 170 | 160 | Nil | + | Occ.puscells | Bi.lat frontal sinusitis | Good |
| | | | | | | | | | After | 9200 | 62 | 34 | 4 | 4 | 8 | 162 | 181 | Nil | + | Few epi.cells | | |
| 14 | 9116 | Selvi | 40 | F | H.wife | 03/07/07 | 10/08/07 | Sneezing, running nose, nasal congestion, head ache | Before | 9500 | 59 | 36 | 5 | 18 | 26 | 112 | 142 | Nil | Nil | Occ.puscells | Bi lat maxillary sinusitis | Moderate |
| | | | | | | | | | After | 9200 | 54 | 41 | 5 | 7 | 16 | 120 | 128 | Nil | Nil | Few epi.cells | | |
| 15 | 1938 | Tharani | 29 | F | H.wife | 11/07/07 | 10/08/07 | Sneezing, running nose, head ache | Before | 9700 | 56 | 39 | 5 | 5 | 9 | 123 | 136 | Nil | Nil | Few epi.cells | Bi lat max & frontal sinusitis | Moderate |
| | | | | | | | | | After | 9600 | 56 | 41 | 3 | 4 | 9 | 112 | 128 | Nil | Nil | Few epi.cells | | |

| S. No | OP. No | Name | Age | Sex | Occupation | Duration | | Complaints | Stage | Blood | | | | | | | | Urine | | | X-ray | Results |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Date | Date | | | TC | DC - % | | | ESR - mm | | Sug - R | Chl | Alb | Sug | Dep | PNS | |
| | | | | | | | | | | cells/cu.mm | P | L | E | 1/2hr | 1hr | mg/dl | mg/dl | | | | | |
| 16 | 2336 | Panchavarnam | 42 | F | H.wife | 12/07/07 | 17/08/07 | Sneezing, running nose, nasal congestion, head ache | Before | 9800 | 60 | 34 | 6 | 14 | 30 | 118 | 214 | Nil | Nil | Few epi.cells | Lt maxillary sinusitis | Moderate |
| | | | | | | | | | After | 9600 | 58 | 38 | 4 | 12 | 18 | 112 | 196 | Nil | Nil | Few epi.cells | | |
| 17 | 6771 | Anitha | 26 | F | H.wife | 24/07/07 | 26/08/07 | Sneezing, running nose, head ache | Before | 9800 | 56 | 40 | 4 | 12 | 25 | 123 | 162 | Nil | Nil | Few epi.cells | Lt maxillary sinusitis | Good |
| | | | | | | | | | After | 9600 | 52 | 46 | 2 | 8 | 15 | 123 | 156 | Nil | Nil | Few epi.cells | | |
| 18 | 9490 | Yasotha | 40 | F | H.wife | 18/10/07 | 13/11/07 | Sneezing, running nose, nasal congestion, head ache | Before | 9400 | 52 | 43 | 5 | 4 | 12 | 99 | 175 | Nil | Nil | Occ.puscells | Bi lat maxillary sinusitis | Moderate |
| | | | | | | | | | After | 9400 | 58 | 37 | 5 | 2 | 10 | 102 | 168 | Nil | Nil | Few epi.cells | | |
| 19 | 954 | Thenmozhi | 30 | F | Steno | 18/10/07 | 13/12/07 | Sneezing, running nose, nasal congestion, head ache | Before | 9400 | 52 | 44 | 4 | 25 | 54 | 110 | 146 | Nil | Nil | Few epi.cells | Rt.max & frontal sinusitis | Good |
| | | | | | | | | | After | 8600 | 58 | 38 | 4 | 12 | 17 | 112 | 132 | Nil | Nil | Few epi.cells | | |
| 20 | 383 | Kabila | 40 | F | H.wife | 22/10/07 | 11/01/08 | Sneezing, running nose, head ache | Before | 9800 | 56 | 35 | 7 | 15 | 32 | 118 | 177 | Nil | Nil | Few epi.cells | Bi lat maxillary sinusitis | Moderate |
| | | | | | | | | | After | 9400 | 58 | 39 | 5 | 11 | 15 | 113 | 158 | Nil | Nil | Few epi.cells | | |
| 21 | 6783 | Suresh | 18 | M | Student | 12/11/07 | 20/12/07 | Running nose, nasal congestion, head ache | Before | 10800 | 64 | 31 | 5 | 10 | 18 | 92 | 123 | Nil | Nil | Few epi.cells | Bi lat maxillary sinusitis | Good |
| | | | | | | | | | After | 9600 | 62 | 34 | 4 | 6 | 13 | 108 | 138 | Nil | Nil | Few epi.cells | | |
| 22 | 6162 | Sulochana | 45 | F | H.wife | 12/11/07 | 31/12/07 | Sneezing, running nose, head ache | Before | 10200 | 60 | 32 | 8 | 12 | 25 | 120 | 163 | Nil | Nil | Few epi.cells | Rt maxillary sinusitis | Good |
| | | | | | | | | | After | 8600 | 54 | 40 | 6 | 9 | 16 | 116 | 148 | Nil | Nil | Few epi.cells | | |
| 23 | 6976 | Veeramani | 42 | M | Sales manager | 14/11/07 | 10/12/08 | Sneezing, running nose, nasal congestion | Before | 9800 | 59 | 36 | 5 | 4 | 9 | 119 | 142 | Nil | Nil | Occ.puscells | Normal study | Good |
| | | | | | | | | | After | 9400 | 64 | 32 | 4 | 3 | 9 | 122 | 153 | Nil | Nil | Few epi.cells | | |
| 24 | 8674 | Chockammal | 47 | F | H.wife | 16/11/07 | 21/12/07 | Sneezing, running nose, nasal congestion | Before | 9900 | 63 | 31 | 6 | 12 | 25 | 138 | 173 | Nil | Nil | Few epi.cells | Bi lat maxillary sinusitis | Moderate |
| | | | | | | | | | After | 9600 | 60 | 36 | 4 | 10 | 14 | 118 | 179 | Nil | Nil | Few epi.cells | | |
| 25 | 7682 | Shanthi | 40 | F | H.wife | 19/11/07 | 07/01/08 | Sneezing, running nose, nasal congestion, head ache | Before | 10200 | 64 | 31 | 5 | 12 | 20 | 138 | 180 | Nil | Nil | Few epi.cells | Bi lat maxillary sinusitis | Moderate |
| | | | | | | | | | After | 9800 | 56 | 40 | 4 | 8 | 16 | 136 | 176 | Nil | Nil | Few epi.cells | | |
| 26 | 2313 | Kalaivani | 18 | F | Student | 29/11/07 | 11/01/08 | Sneezing, running nose, nasal congestion, head ache | Before | 9400 | 55 | 42 | 5 | 12 | 20 | 102 | 128 | Nil | Nil | Few epi.cells | Bi lat max & frontal sinusitis | Moderate |
| | | | | | | | | | After | 9600 | 58 | 38 | 4 | 10 | 15 | 98 | 132 | Nil | Nil | Few epi.cells | | |
| 27 | 4512 | Dhanalakshmi | 27 | F | H.wife | 05/12/07 | 17/01/08 | Sneezing, running nose, nasal congestion | Before | 9300 | 54 | 40 | 6 | 8 | 20 | 112 | 153 | Nil | Nil | Few epi.cells | Normal study | Good |
| | | | | | | | | | After | 8200 | 56 | 39 | 5 | 4 | 12 | 122 | 148 | Nil | Nil | Few epi.cells | | |
| 28 | 4554 | Basheera Banu | 33 | F | H.wife | 05/12/07 | 23/01/08 | Sneezing,running nose,headache | Before | 10200 | 62 | 31 | 7 | 12 | 25 | 138 | 163 | Nil | + | Few epi.cells | Bi lat max & frontal sinusitis | Moderate |
| | | | | | | | | | After | 9800 | 54 | 42 | 4 | 12 | 15 | 126 | 159 | Nil | + | Few epi.cells | | |
| 29 | 4848 | Kalaivani | 38 | F | H.wife | 06/12/07 | 23/01/08 | Sneezing, running nose, nasal congestion, head ache | Before | 10200 | 62 | 30 | 8 | 12 | 25 | 125 | 169 | Nil | Nil | Few epi.cells | Bi lat maxillary sinusitis | Moderate |
| | | | | | | | | | After | 9400 | 58 | 36 | 6 | 10 | 16 | 118 | 166 | Nil | Nil | Few epi.cells | | |
| 30 | 5124 | Gunaseelan | 30 | M | Press worker | 07/12/07 | 23/01/08 | Sneezing, running nose, nasal congestion | Before | 9800 | 60 | 32 | 8 | 2 | 5 | 114 | 135 | Nil | Nil | Few epi.cells | Normal study | Good |
| | | | | | | | | | After | 9400 | 58 | 37 | 5 | 2 | 6 | 102 | 132 | Nil | Nil | Few epi.cells | | |

| S. No | OP. No | Name | Age | Sex | Occupation | Duration | | Complaints | Stage | Blood | | | | | | | | Urine | | | X-ray | Results |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Date | Date | | | TC | DC - % | | | ESR - mm | | Sug - R | Chl | Alb | Sug | Dep | PNS | |
| | | | | | | | | | | cells/cu.mm | P | L | E | 1/2hr | 1hr | mg/dl | mg/dl | | | | | |
| 31 | 5204 | Durgadarshini | 22 | F | Student | 07/12/07 | 23/01/08 | Sneezing, running nose, nasal congestion, head ache | Before | 9000 | 50 | 45 | 5 | 11 | 20 | 128 | 137 | Nil | Nil | Few epi.cells | Bi lat maxillary sinusitis | Good |
| | | | | | | | | | After | 9200 | 53 | 42 | 5 | 7 | 14 | 116 | 140 | Nil | Nil | Few epi.cells | | |
| 32 | 2025 | Saraswathi | 20 | F | Tailor | 10/12/07 | 26/01/08 | Sneezing, running nose, nasal congestion, head ache | Before | 9400 | 63 | 35 | 2 | 10 | 18 | 92 | 128 | Nil | Nil | Few epi.cells | Bi lat max & frontal sinusitis | Poor |
| | | | | | | | | | After | 9400 | 52 | 46 | 2 | 10 | 12 | 100 | 138 | Nil | Nil | Few epi.cells | | |
| 33 | 6191 | Mumtaz | 35 | F | Steno | 10/12/07 | 23/01/08 | Sneezing, nasal congestion, head ache | Before | 9500 | 57 | 36 | 7 | 12 | 20 | 83 | 182 | Nil | Nil | Few epi.cells | Rt maxillary sinusitis | Good |
| | | | | | | | | | After | 9200 | 62 | 34 | 4 | 7 | 14 | 96 | 158 | Nil | Nil | Few epi.cells | | |
| 34 | 6043 | Selvaraj | 27 | M | Electrician | 10/12/07 | 28/01/08 | Sneezing, nasal congestion, head ache | Before | 9200 | 54 | 42 | 4 | 2 | 3 | 102 | 172 | Nil | Nil | Few epi.cells | Bi lat maxillary sinusitis | Moderate |
| | | | | | | | | | After | 9200 | 54 | 40 | 4 | 2 | 3 | 98 | 166 | Nil | Nil | Few epi.cells | | |
| 35 | 6304 | Beula | 37 | F | H.wife | 10/12/07 | 28/01/08 | Sneezing, running nose, nasal congestion, head ache | Before | 9800 | 57 | 38 | 5 | 5 | 12 | 133 | 188 | Nil | Nil | Occ.puscells | Normal study | Good |
| | | | | | | | | | After | 9200 | 54 | 41 | 5 | 5 | 11 | 128 | 162 | Nil | Nil | Few epi.cells | | |
| 36 | 7438 | Padmavathi | 40 | F | H.wife | 10/12/07 | 01/02/08 | Sneezing, running nose, nasal congestion | Before | 9400 | 56 | 36 | 8 | 10 | 21 | 120 | 175 | Nil | Nil | Few epi.cells | Bi lat maxillary sinusitis | Poor |
| | | | | | | | | | After | 9600 | 58 | 36 | 6 | 9 | 15 | 115 | 165 | Nil | Nil | Few epi.cells | | |
| 37 | 6987 | Ramani | 23 | M | Student | 12/12/07 | 28/01/08 | Sneezing, running nose, nasal congestion, head ache | Before | 9400 | 57 | 36 | 7 | 11 | 20 | 82 | 149 | Nil | Nil | Few epi.cells | Rt maxillary sinusitis | Moderate |
| | | | | | | | | | After | 9600 | 60 | 34 | 6 | 7 | 16 | 95 | 142 | Nil | Nil | Few epi.cells | | |
| 38 | 7104 | Jayashree | 32 | F | H.wife | 12/12/07 | 28/01/08 | Sneezing, nasal congestion, head ache | Before | 10400 | 60 | 26 | # | 12 | 20 | 115 | 167 | Nil | Nil | Occ.puscells | Bi lat maxillary sinusitis | Good |
| | | | | | | | | | After | 9800 | 62 | 29 | 9 | 11 | 18 | 112 | 160 | Nil | Nil | Few epi.cells | | |
| 39 | 7520 | Jesintha | 39 | F | Servant | 13/12/07 | 31/01/08 | Sneezing, running nose, nasal congestion, head ache | Before | 9000 | 53 | 42 | 5 | 12 | 20 | 130 | 186 | Nil | Nil | Few epi.cells | Bi lat maxillary sinusitis | Poor |
| | | | | | | | | | After | 9000 | 58 | 38 | 4 | 10 | 18 | 122 | 170 | Nil | Nil | Few epi.cells | | |
| 40 | 7411 | Lalitha | 49 | F | H.wife | 13/12/07 | 31/01/08 | Sneezing, running nose, nasal congestion, head ache | Before | 9300 | 52 | 42 | 6 | 15 | 36 | 115 | 180 | Nil | Nil | Few epi.cells | Bi lat maxillary sinusitis | Good |
| | | | | | | | | | After | 9400 | 56 | 39 | 5 | 12 | 20 | 110 | 182 | Nil | Nil | Few epi.cells | | |
| 41 | 7412 | Vimala | 43 | F | H.wife | 13/12/07 | 04/02/08 | Sneezing, running nose, nasal congestion, head ache | Before | 9800 | 59 | 35 | 6 | 16 | 22 | 87 | 191 | Nil | Nil | Occ.puscells | Bi lat maxillary sinusitis | Good |
| | | | | | | | | | After | 9600 | 54 | 42 | 4 | 10 | 14 | 92 | 180 | Nil | Nil | Few epi.cells | | |
| 42 | 5095 | Arasu | 35 | M | Peon | 17/12/07 | 01/02/08 | Sneezing, running nose, nasal congestion, head ache | Before | 10200 | 60 | 34 | 6 | 5 | 11 | 89 | 146 | Nil | Nil | Few epi.cells | Bi lat maxillary sinusitis | Good |
| | | | | | | | | | After | 9800 | 58 | 37 | 5 | 7 | 10 | 96 | 152 | Nil | Nil | Few epi.cells | | |
| 43 | 8826 | Karunamoorthy | 52 | M | Koolie | 17/12/07 | 03/02/08 | Sneezing, running nose, nasal congestion, head ache | Before | 9800 | 59 | 35 | 6 | 16 | 22 | 168 | 169 | Nil | Nil | Occ.puscells | Bi lat maxillary sinusitis | Moderate |
| | | | | | | | | | After | 9200 | 64 | 30 | 6 | 10 | 17 | 155 | 140 | Nil | Nil | Few epi.cells | | |
| 44 | 9031 | Shanthi | 40 | F | H.wife | 17/12/07 | 05/02/08 | Sneezing, running nose, head ache | Before | 9200 | 55 | 41 | 4 | 11 | 20 | 99 | 177 | Nil | Nil | Few epi.cells | Bi lat maxillary sinusitis | Moderate |
| | | | | | | | | | After | 9400 | 65 | 31 | 4 | 8 | 12 | 112 | 172 | Nil | Nil | Few epi.cells | | |

TC Total WBC Count
DC Differential Count
P Polymorphs
L Leucocytes
E Eosinophils
ESR Ertthrocyte Sedimentation Rate
Sug - R Sugar Random
Chl Cholestrol
Alb Albumin
Dep Deposits
PNS Para Nasal Sinuses

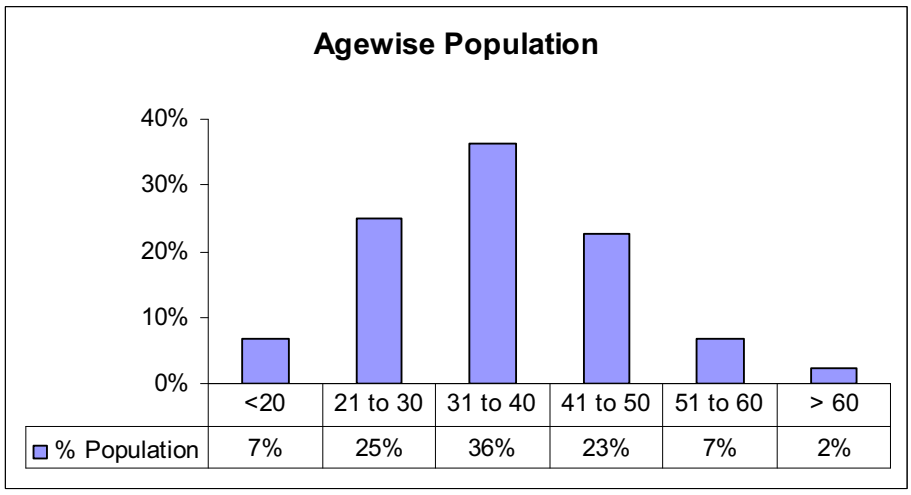
**Clinical Assessment:**

The clinical study was subjected to 50 selected cases. 6 patients with drew from the treatment. The following parameters were observed during the course of treatement.

- Age
- Sex
- Socio – economic status
- Occupational status
- Clinical features

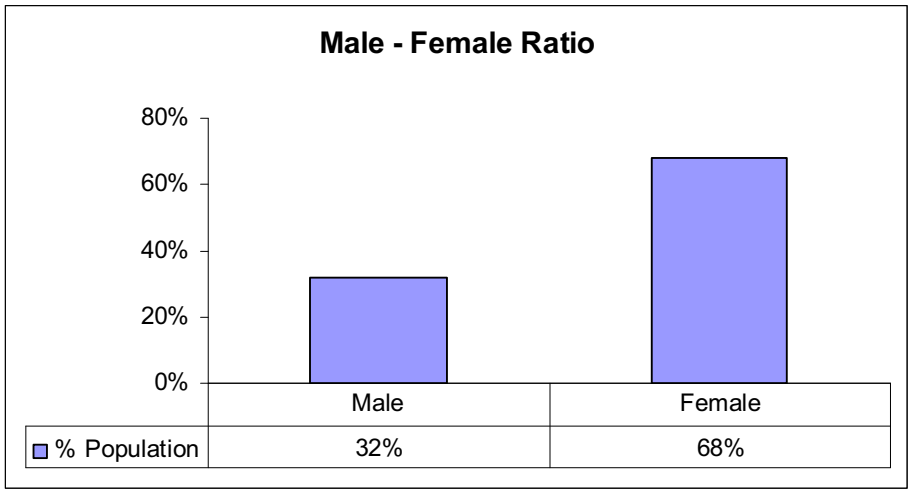
**Age:**

Amongst 44 patients, 3 belonged to less than 20 years group, 11 were from 21 to 31 years group, 16 were from 31 to 40 years , 10 in 41 to 50 years, 3 in 51 to 60 and 1 above 60. The percentage population is as follows:



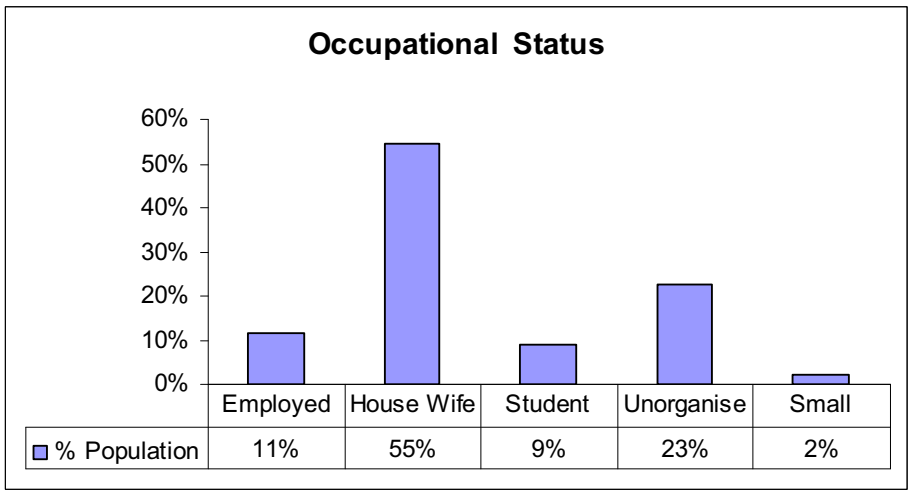
**Sex:**

Amongst 44 patients, 14 patients were males and 30 were females. The percentage ratio is as follows:



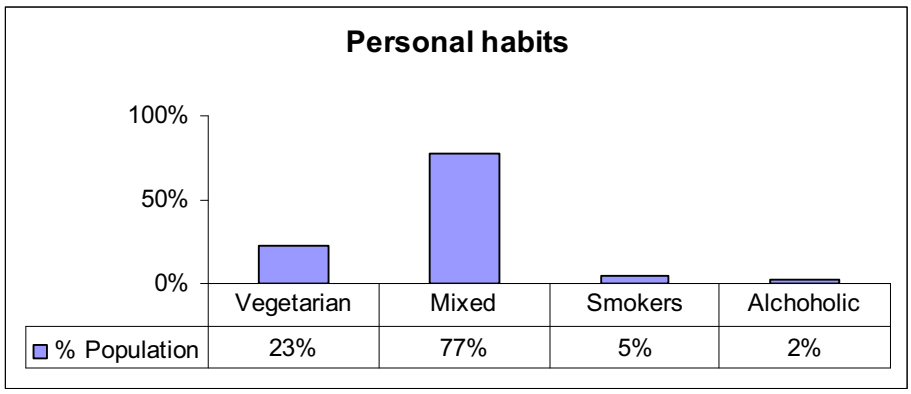

**Socio Economic Status:**

Amongst 44 patients, 25 patients were poor, 18 in Lower middle class and 1 in upper middle class. There were none in rich class. The percentage in the above classification is as follows.



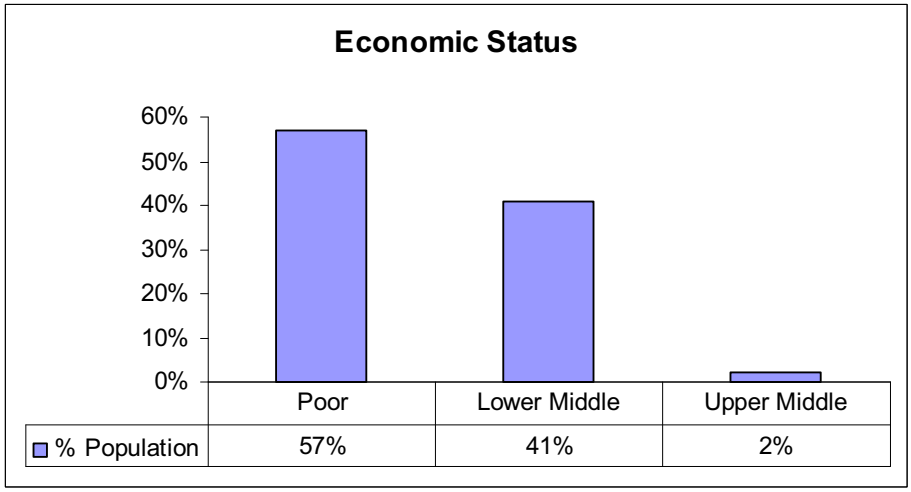
**Personal Habits and diet:**

Out of 44 patients 10 were vegetarians and 34 were mixed. 2 were smokers and 1 alcoholic. The percentage composition is as follows:



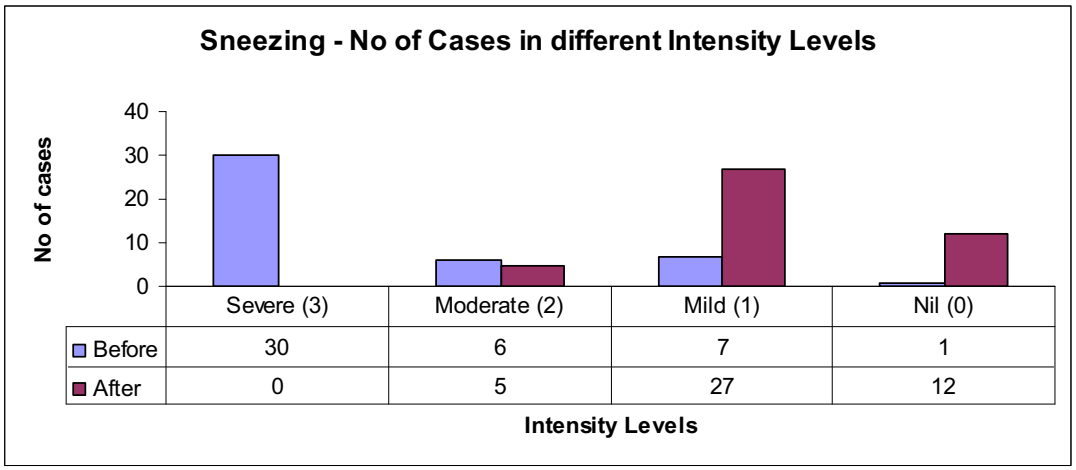

**Occupational Status:**

Out of 44 patients, 5 were employed in regular employment, 24 were house wives, 4 were students, 10 engaged in unorganized sector, and 1 was a small vendor. The percentage composition is as follows:



**Improvement in Sneezing:**

The no. of patients reported severe sneezing were 30 before treatment and it was nil after treatment. The moderate cases were 6 before treatment and 5 after treatment. The mild cases which were 7 became 27 after treatment and the nil cases rose from 1 before treatment to 12 after treatment. The results are as follows:




**Descriptive Statistics for Sneezing**

Sneezing Before vs. after treatment

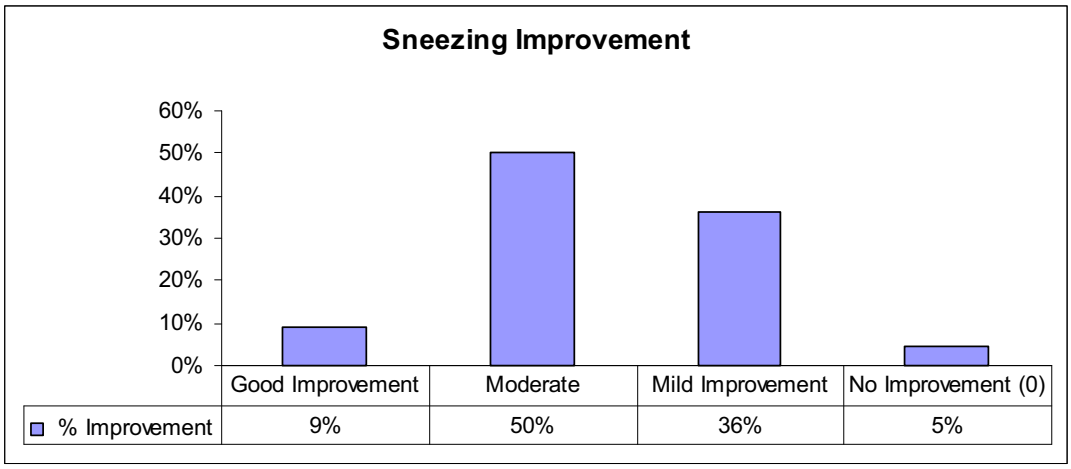
| | | After treatment | | | Total |
|---|---|---|---|---|---|
| | | 0 | 1 | 2 | |
| Before treatment | 0 | 1 (100) | 0 | 0 | 1 |
| | 1 | 6 (85.7) | 1 (14.3) | 0 | 7 |
| | 2 | 1 (16.7) | 5 (83.3) | 0 | 6 |
| | 3 | 4 (13.3) | 21 (70) | 5 (16.7) | 30 |
| | Total | 12 | 27 | 5 | 44 |

Chi – square test table

| | Chi-square | P – value |
|---|---|---|
| Pearson chi square | 19.40 | 0.004 |

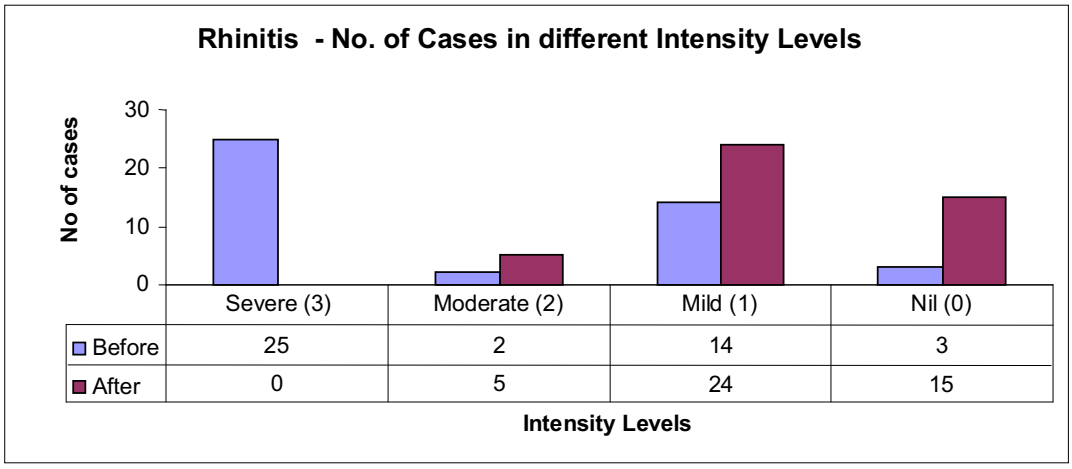
From the above table we got a significant difference ($p< 0.05$), so we conclude that there is an improvement between before and after treatment.

4 patients had good improvement, while 22 patients had moderate improvement. 16 had mild improvement and 2 reported no improvement. The % improvement is shown below.




**Improvement in Rhinitis:**

The no. of patients reported severe rhinitis was 25 before treatment and it was nil after treatment. The moderate cases were 2 before treatment and 5 after treatment. The mild cases which were 14 became 24 after treatment and the nil cases rose from 3 before treatment to 15 after treatment. The results are as follows:



**Descriptive Statistics for Rhinitis**

Rhinitis Before vs. after treatment

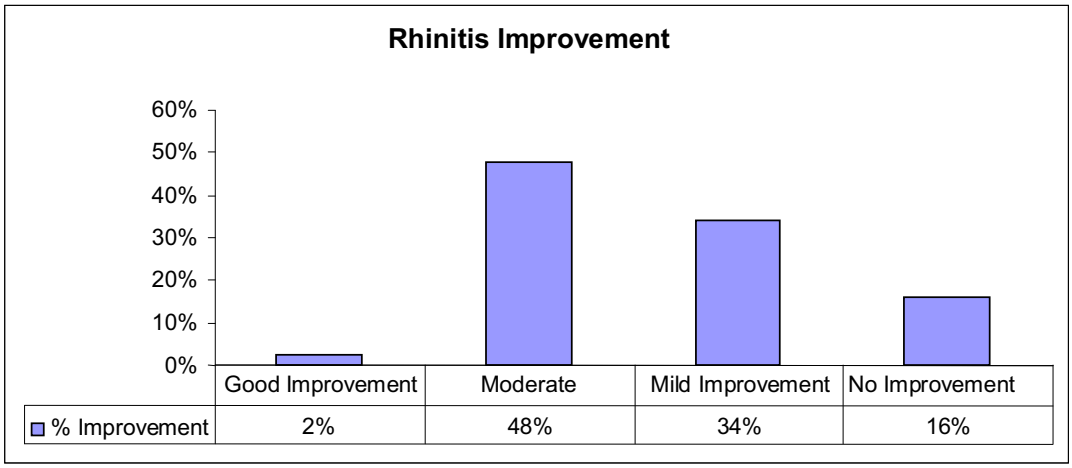
| | | After treatment | | | Total |
|---|---|---|---|---|---|
| | | 0 | 1 | 2 | |
| Before treatment | 0 | 3 (100) | 0 | 0 | 3 |
| | 1 | 10 (71.4) | 3 (21.4) | 1 (7.1) | 14 |
| | 2 | 1 (50) | 1 (50) | 0 | 2 |
| | 3 | 1 (4) | 20 (80) | 4 (16) | 25 |
| | Total | 15 | 24 | 5 | 44 |

Chi – square test table

| | Chi-square | P – value |
|---|---|---|
| Pearson chi square | 25.03 | 0.000 |

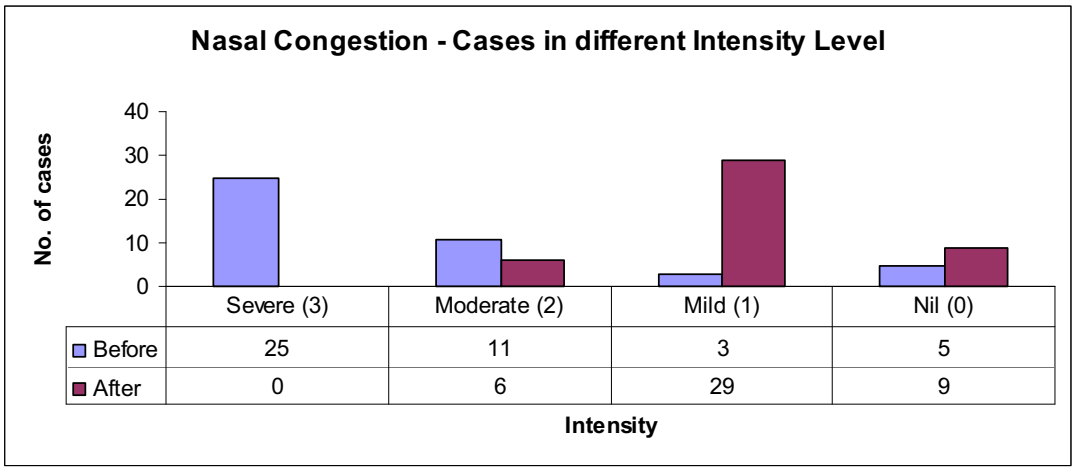
From the above table we got a significant difference ($p < 0.05$), so we conclude that there is an improvement between before and after treatment.

1 patient had good improvement, while 21 patients had moderate improvement. 15 had mild improvement and 7 reported no improvement. The % improvement is shown below.



**Improvement in Nasal Congestion:**

The no. of patients reported severe nasal congestion was 25 before treatment and it was nil after treatment. The moderate cases were 11 before treatment and 6 after treatment. The mild cases which were 3 became 29 after treatment and the nil cases rose from 5 before treatment to 9 after treatment. The results are as follows:




**Descriptive Statistics for Nasal Congestion**

Nasal Congestion Before vs. after treatment

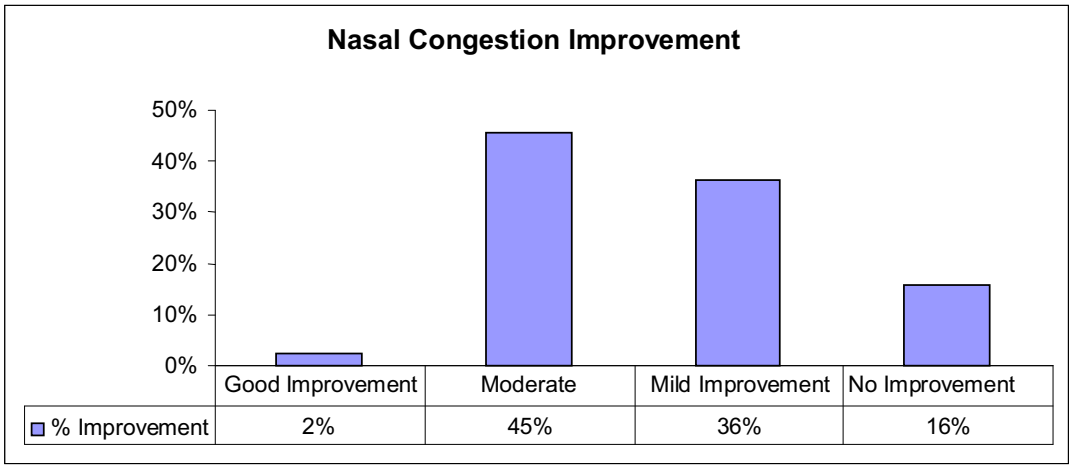
| | | After treatment | | | Total |
|---|---|---|---|---|---|
| | | 0 | 1 | 2 | |
| Before treatment | 0 | 5 (100) | 0 | 0 | 5 |
| | 1 | 1 (33.3) | 2 (66.7) | 0 | 3 |
| | 2 | 2 (18.2) | 9 (81.8) | 0 | 11 |
| | 3 | 1 (4.0) | 18 (72.0) | 6 (24.0) | 25 |
| | Total | 9 | 29 | 6 | 44 |

Chi – square test table

| | Chi-square | P – value |
|---|---|---|
| Pearson chi square | 27.47 | 0.004 |

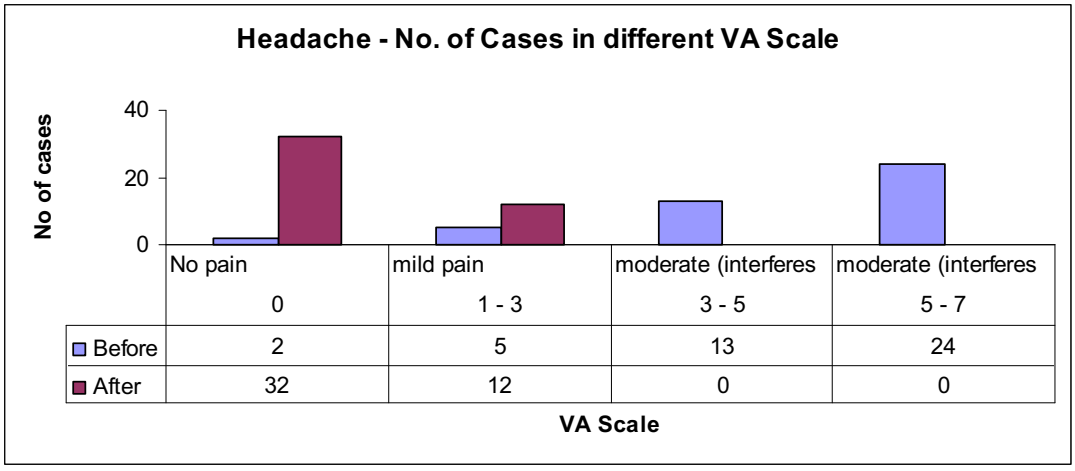
From the above table we got a significant difference ($p< 0.05$), so we conclude that there is an improvement between before and after treatment.

1 patient had good improvement, while 20 patients had moderate improvement. 16 had mild improvement and 7 reported no improvement. The % improvement is shown below.




**Improvement in Headache:**

The no. of patients reported severe headache were 24 before treatment and it was nil after treatment. The moderate cases were 13 before treatment and nil after treatment. The mild cases which were 5 became 12 after treatment and the nil cases rose from 2 before treatment to 32 after treatment. The results are as follows:



**Descriptive Statistics for Headache**

| | Mean | Standard Deviation | Standard Error of Mean |
|---|---|---|---|
| Pain before treatment | 4.57 | 1.92 | 0.29 |
| Pain after treatment | 0.30 | 0.51 | 0.08 |

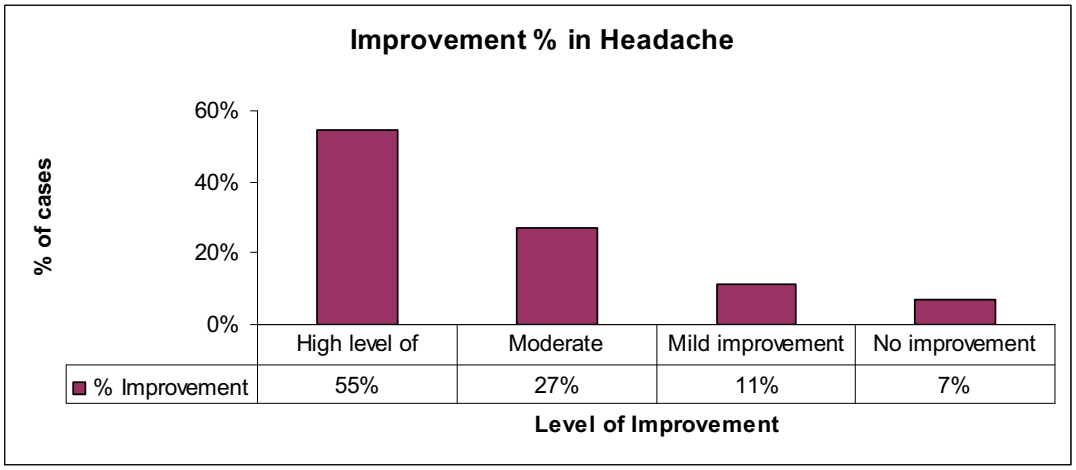
From the table we have arrived at the descriptive statistics like Mean, S.D., and S.E. of Mean for the pain score before and after treatment.

**T-Table**

| | Mean | Standard Dev. | S.E | t-value | p-value |
|---|---|---|---|---|---|
| Pre vs. Post | 4.27 | 1.92 | 0.29 | 14.75 | 0.000 |

From the above table we have arrived a highly significant difference ($p < 0.05$) so we conclude that there is an improvement between before and after treatment.

24 patients had good improvement, while 12 patients had moderate improvement. 5 had mild improvement and 3 reported no improvement. The % improvement is shown below.



# Part - 2
# A Study on Karpoora Mezhugu for Peenisam

## Discussion

## 5. Discussion

According to **'Kannusamy Pillai Parmbarai Vaidhyam',** '**Karpoora mezhugu'** indicated for '**Peenisam'.** The prevalence of 'Peenisam'has increased in the last decade due to increased pollution, urban sprawl and increased drug resistance caused by frequent consumption of antibiotics.

'Karpoora mezhugu' is not widely prescribed for 'Peenisam', though it is easy to prepare and cost effective. Hence, it was decided to study the impact of 'Karpoora mezhugu, pharmacologically and clinically.

The review of literature confirmed that, individually the ingredients in Karpoora mezhugu' have action on 'Peenisam"

- Camphor and Valmizhagu have **antiseptic** property
- Camphor is known to be used in the **irritable conditions** of the nasal mucus membrane.
- Mathuzhai verpattai exerts **antibiotic** and **immunomodulatory** activities
- Valmizhagu and Kirambu posses **anti-oxidant** properties
- **Methyl - Salicylate** present in Kirambu acts as a pain killer
- Previous studies revealed that Jaggery acts as a **protective agent** for workers in dusty and smoky environment.
- **Vitamin C** present in Lime Juice and Jaggery builds body resistance against infections [31] and the **anti inflammatory** [3] property of vitamin 'C' helps to reduce inflammation of nasal mucosa.

Bio-chemical analysis showed the presence of Sulphate, Chloride, Oxalate, Aluminium, Calcium and Magnesium.

Preliminary phyto chemical analysis revealed the presence of sugar, tannins, flavonoids, triterpenoids and steroids.

Flavonoids have shown **antibacterial** and **anti-inflammatory** activity. [28]

Terpenoids exert **antiseptic, analgesic** and **stimulant** properties. [28]

Tannins posses mild antiseptic action. [28]

Antimicrobial study shows that 'Karpoora mezhugu' have excellent activity against ***Straphylococcus aureus***.. Moderate activity against ***Pseudomonas auerginosa*** which is useful in treating 'Peenisam'.

Pharmacological studies showed that **acute toxicity** of the drug is 4000 mg/Kg. in animal models.

The **anti-inflammatory** activity was statistically significant ($P<0.05$) at the concentration of 400 mg/Kg.

In the doses of 400 and 800 mg/Kg body weight 'Karpoora mezhugu' shows significant **analgesic** activity.

In **anti-histaminic** study, as low as 1mg/ml of the drug produced inhibition on isolated guinea pig ileum is significant

For clinical study 50 patients were selected between the age group of 16 to 65 years. Out of these 6 patients discontinued the treatment on various withdrawal criteria . 'Karpoora mezhugu' was administered at the dose of 400 mg twice daily with water. Amongst 44 patients,

- 9% had good improvement in **sneezing,** 50% moderate, 36% mild and 5% no improvement

- 2% had good improvement in **rhinitis**, 48 % moderate, 36% mild and 16% no improvement

- 2% had good improvement in **nasal congestion**, 45 % moderate, 36% mild and 16% no improvement

- 55% had good improvement in **head-ache**, 27 % moderate, 11% mild and 7% no improvement

Clinically there were no significant adverse effects reported or observed during the entire study period.

Except "Salt" taste, Karpoora Mezhugu has the other **5 tastes**.

"**Karpu, kaipu** and **thuvarpu** tastes are helpful in alleviating '**Kapha**", which is the main cause for Peenisam.

'Peenisam' also occurs in 'Pitha Kapha' and 'Kapha Vatha', 'Nadi combinations'. 'Sweet' taste neutralizes 'Pitha' and the 'Sour' taste neutralizes 'Vatha'.

Karpooram, Kirambu and Valmizhagu have '**Veppa Veerium'** and '**Stimulant**' action, which are useful in the treatment of 'Peenisam'.

'**Thatpa Veerium'** of Mathuzhai Ver Pattai and '**Seetha Veerium'** of Lime juice and Vellam, do not allow to exceed the 'Vepa Veerium' of the above drugs beyond the normal limits. The **astringent** property of Mathuzhai Verpattai prevents the gastric disturbances that arise from the above 'Vepa Veria' substances

Karpooram is alkaline (Uppu Sarakku) and Lime juice is acidic (Pulli Sarakku) in nature. By heating Karpooram with lime juice, the toxicity of karpooram was removed.[30]

From the above studies and discussion it is evident that Karpoora mezhugu is effective in the treatment of Peenisam.

# Part - 2
# A Study on Karpoora Mezhugu for Peenisam

## Summary and Conclusion

## 6. Summary and Conclusion

'Karpoora Mezhugu' is one of the effective drug which is cost effective and easy to prepare. Hence it has been selected and various studies were carried out to find its efficacy in treating Peenisam.

- The acute toxicity of the drug is 400 mg/kg, in animal models.
- Pharmacological study shows, that it has mild anti-inflammatory, good analgesic and excellent anti-histaminic activities.
- Clinical study shows, statistically significant improvement in sneezing, running nose, nasal congestion, and headache.
- The percentage improvement in the slab – 'moderate improvement' is high in sneezing (50%), rhinitis (48%) and nasal congestion (45%). For headache, the percentage improvement in the slab - "good improvement" is high (55%).

Even with 6 weeks of treatment, 'Karpoora Mezhugu' has shown moderate to high improvement in all the symptoms of Peenisam. Hence further studies can be made to assess its efficacy in long term treatment.

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